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A Guide to Utah Native Plants and their use in the Landscape

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A GUIDE TO UTAH NATIVE PLANTS AND THEIR USE IN THE LANDSCAPE

by

Jared F. Barnes

A report submitted in partial fulfillment of the requirements for the degree

of

MASTER OF LANDSCAPE ARCHITECTURE

Approved:

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ACKNOWLEDGMENTS

I would like to thank Craig Johnson for his mentoring and guidance throughout this project. It was during his planting design course in the fall of 1999 that I realized we shared common interests and I saw the need for such a publication for landscape architecture students and others. Craig helped to guide the direction and focus of this project through quick and intelligent responses to the numerous drafts I gave him, integrating it all with the rest of my university education. I would like to thank Roger Kjelgren for his enthusiasm and vision for this project. Roger provided the essential horticultural perspective and was helpful with computer and digital photo support. I would like to thank Dave Bell who offered sound advice and insight.

I give a special thanks to those who contributed, with no compensation, native plant knowledge and high quality photographs. These individuals include: Phil Allen, Craig Johnson, Roger Kjelgren, Charles Mann, Susan Meyer, Paula Mohadjer, Larry Rupp, Dianne and Scott Skogerboe, Richard Sutton, and Bill Varga. This project wouldn't have succeeded without their contributions. Thanks to Donald Jensen at the Utah Climate Center for providing Utah's precipitation data and to Kimberly Karish for providing Utah Gap data. I thank the Mariner S. Eccles Foundation and the Center for Water-Efficient Landscaping for their generous support of this effort and Ardith Poulsen, the LAEP department secretary, for clerical help.

Finally, this project wouldn't mean much without the love, patience, and sacrifice of my wife, Kylie. Thank you for your support. I can now honestly say this project is finished and I'm read to launch my professional career.

Jared F. Barnes

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INTRODUCTION

As a landscape architecture student, I am interested in the use of plant materials; they are a fundamental part of my design palette. However, I am concerned with the quantity of water used for irrigation of mostly non-native plant materials in built landscapes of the arid west. An estimated 60-65% of water consumed in Utah from May-September is used to irrigate landscapes. Landscape architects must do their part in dealing with the impending water crisis by modifying current practices. An important first step is to use and encourage others to use more drought tolerant native plants. The purpose of this project is to educate and inform professionals, students, and the public about Utah's native plant materials, highlight their water conserving attributes, and demonstrate how these plants can be used within the landscape context.

Recent interest in native plants and xeriscaping (water-wise landscaping) has generated research and numerous books, pamphlets, and articles. Material included in these publications consists of general information about plants, plant species lists, sketches or photographs of the plants or plant parts, landscape design principles, water zoning and irrigation design, planting, etc. The Department of Landscape Architecture at USU has produced publications on planting for wildlife and urban forestry, which includes the types of information described above. The USU Extension Service has also produced several publications on Utah native plants and water-wise landscaping. An existing USU publication, "Landscape Plants from Utah's Mountains" (1974), provides detailed information about a number of Utah's native woody plants. While this information is very useful, it does not communicate the actual character of the native plant materials effectively because it lacks photographic images. The publication is also

dated and does not include grass or forb species. This project, "A Guide to Utah Native Plants and Their Use in the Landscape," solves the problem of visualization through the addition of photographs. Photographs show plant morphology, relative size, and texture along with special plant features such as seasonal color, flowers, leaves, fruit, and bark. The photographs also show how these plants appear in a natural setting and whenever possible, a cultivated landscape setting. Other improvements to "Landscape Plants from Utah's Mountains" are an update of the text including recent research on plant water requirements, the incorporation of certain native plant species that were not originally included, and the identification and description of the native plant associations in which the plants are found. In addition, similar material is being added for grasses and forbs. That effort is not a part of this thesis.

GOALS

The primary objective of this publication is to reduce the quantity of water used to sustain outdoor landscapes by promoting the intelligent use of low water consuming native species. Additional objectives include:

- Encourage the public and landscape professionals to preserve, enhance, restore and recreate native plant communities.
- Provide an easily accessible source of accurate native plant information including photographic images of each species.
- Provide species specific and general plant association information that will aid publication users in matching plant choices with growing conditions, functional needs, and aesthetic goals.
- Encourage the landscape industry to propagate a greater diversity of native plants and make them commercially available.

An updated photographic guide to Utah's native plants is helpful in educating and informing people in many ways. Having a teaching resource and useful reference benefits faculty and students of landscape architecture. The photos help students to recognize and identify native plants useful for landscape purposes, illustrate the characteristics of particular plants that make them unique, and show how the plants can be used in landscape designs at many scales. Photographs of plants together with detailed taxonomic and horticultural information helps designers and others make informed landscaping decisions. This reference, to be made available as a hard copy and on the Internet, will also benefit professionals and the public in making water-wise landscape decisions. The information is presented in an easy to use and understandable format for use as a future publication.

METHODS

Under the direction of the Landscape Architecture department and in cooperation with the Center for Water Efficient Landscapes and a five person Utah native plants advisory board, I have done the following:

- Developed criteria to determine which native plant species have the greatest landscape potential for northern Utah, specifically Cache Valley and the Wasatch Front. The criteria include aesthetic quality, cold hardiness, water use, indigenous to Utah, availability, ease in propagating, ease of establishment, and wildlife value.

- Selected 68 different woody plant species in collaboration with the advisory board using the above criteria. The plant list is extensive enough to offer a good selection and variety and includes deciduous and evergreen trees, shrubs and sub-shrubs, groundcovers, and a vine.

- Conducted a literature search for both published and unpublished work that will update information on selected native and drought tolerant plants. This work is referenced in the bibliography.

- Researched, compiled, and updated the information for each woody plant species taken from "Landscape Plants from Utah's Mountains" and those plants which were added for this project, but not found in the original publication. Also added were plant associations, USDA hardiness zones, irrigation requirements (Rupp, unpublished), establishment information, companion plants, and comments.

- Illustrated nine Utah plant associations in both plan view and elevation drawings.

- Arranged Utah's calculated average precipitation data for 1971-2000 as provided by the Utah Climate Center by county and weather station.

- Compiled an extensive list of native plant material and seed sources in the western states in addition to Utah's native and drought-tolerant plant demonstration gardens.

- Conducted an extensive search for quality, color photographs of all of the plants to be included in this project. Photos show specific plant characteristics and features, and whenever possible, show each plant in a landscape setting. Permission was obtained from the photographer for each photo to be used in publication. Photographers are credited in the publication.

- Taken photographs of those plants for which photos were not available.

- Edited and compiled the photographs into digital form using Adobe Photoshop 5.0.

- Designed the layout for publication using Adobe Pagemaker 6.5.

Preliminary drafts of the updated text, horticultural information, layout of materials, and photographs were reviewed on two separate occasions by the advisory board.

RESULTS

My efforts resulted in the compilation of Utah native woody plant information and photographs into a user friendly, printer ready document for publication by Utah State University Extension. Herbaceous plant materials including grasses, forbs, and some groundcovers were not originally included in "Landscape Plants from Utah's Mountains" and are beyond the scope of my duties for this project. Another graduate student in the Department of Landscape Architecture and Environmental Planning is doing the compilation of research and photographs so that these important landscape

plants can be included in the final publication of "A Guide to Utah Native Plants and Their Use in the Landscape." If future funding is made available, the project will be printed in full color and possibly be made available on compact disc and via the Internet.

USER'S GUIDE

"A Guide to Utah Native Plants and Their Use in the Landscape" provides specific information about deciduous and evergreen trees, shrubs and sub-shrubs, groundcovers, and a vine native to northern and central Utah. It is intended as a reference for the general public as well as landscape architects, urban foresters, restorationists, horticulturists, and others in the nursery industry. For the convenience of the reader, the woody plants are organized alphabetically according to their botanical name as given by Welsh et al. in A Utah Flora (1987), which is italicized (*Genus species*). This name is followed by a common name and plant family name. For each of the 68 woody plant species, information has been catalogued into four general categories: **Appearance**, **Natural Habitat**, **Landscape Use**, and **Comments**.

HEADING AND SUBHEADING DESCRIPTIONS

Appearance includes the following subheadings: *size, form, roots, leaves, flower, fruit, bark, and winter*. The *size* of the plant is presented as height and width in feet. *Form* describes the overall shape, character, and growth habit of the plant. All of the woody plants have woody roots; *root* information describes the habit of growth and rooting depth. *Leaf* information includes size, shape, texture, color, and seasonal variation. *Flowers* are described according to their size, color, and season of bloom. *Fruit* characteristics discussed include size, color, shape, and type. The *bark* is described according to its thickness, color, and character. Finally, the plant's *winter* appearance is described.

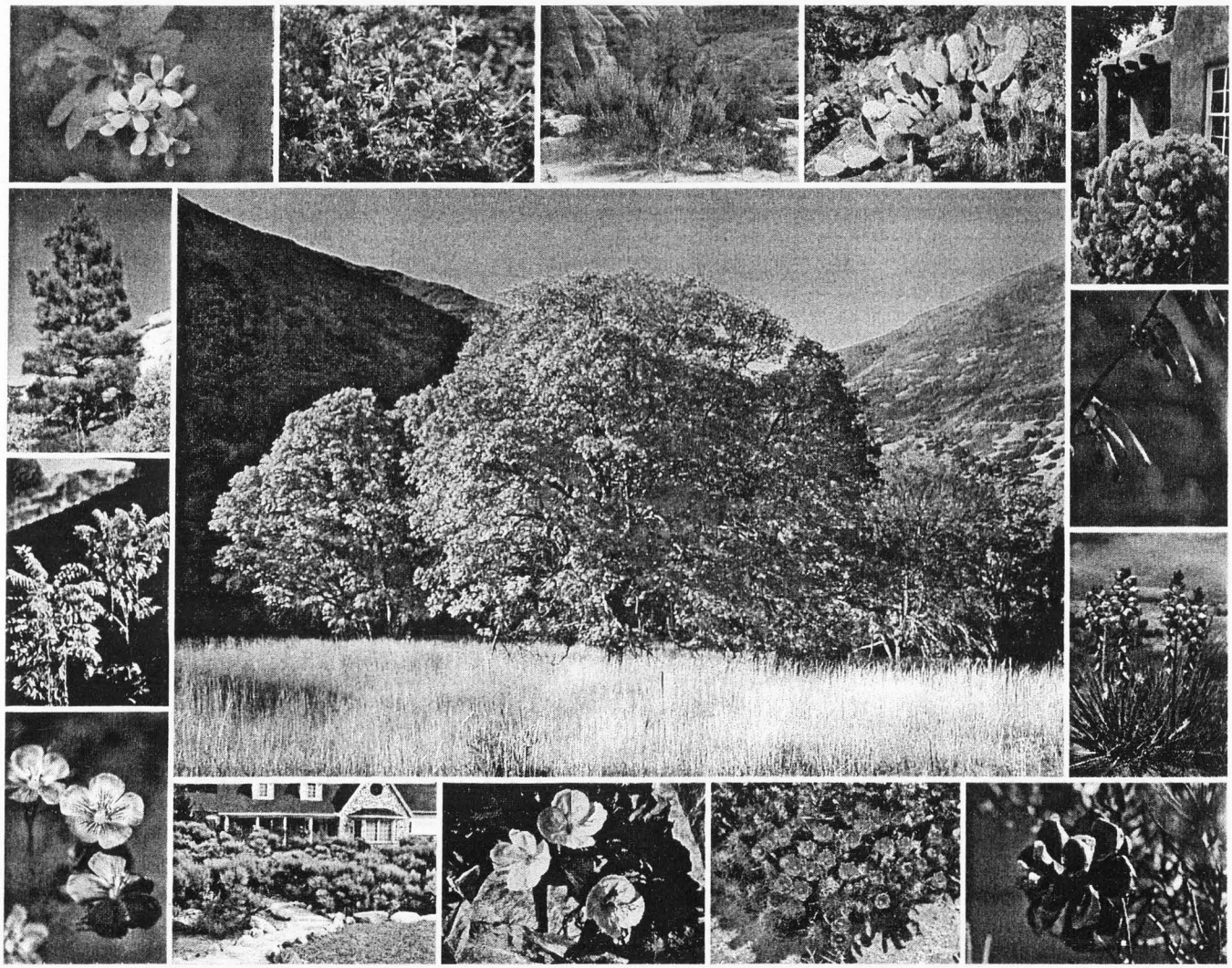
Natural Habitat includes the following subheadings: *habitat and range, elevation, plant association, soil, and exposure/aspect. Habitat and range* refers to the places where the plant grows naturally and its geographic distribution. The *elevation* refers to the elevation above sea level in feet in which the plant is found growing naturally in Utah. Each of the plants is categorized according to a general *plant association*, which occurs in Utah; descriptions are adapted from the Salt Lake County Nature Area Revegetation Manual (Ecotone, 1995). *Soil* information includes texture, pH, depth, drainage, and amount of organic matter. *Exposure/aspect* describes the topographic orientation the plant prefers and amount of sunlight that it needs to grow.

Landscape Use includes the following subheadings: *hardiness zones, water use, establishment, growth rate, best use, wildlife value, and companion plants.* The *hardiness zones* used in this publication refer to those zones set by the USDA for the contiguous United States and southern Canada. These zones range from 1-11 and correspond to a 10°F range in average annual minimum temperatures. *Water use* is ranked from lowest to highest as xeric, low, medium, medium-high, or high. A water amount in annual inches of precipitation is included in parentheses whenever the information was available (Rupp, unpublished). *Establishment* describes those practices, especially water supplements, which are needed in order for a newly planted tree or shrub species to become established in a cultivated landscape. *Growth rate* is subjective and is a function of water availability, soil condition, and other environmental factors. However, a slow, moderate, or rapid growth rate and average size are estimated and listed. *Best use* is also subjective based on experience, personal taste, and aesthetics. Generally agreed upon landscape uses are listed here. Uses are a function of plant

appearance, form, habit, hardiness, and how the plant functions naturally within the ecosystem. *Wildlife value* describes how various wildlife species use the plant, either as food or cover. *Companion plants* direct the user to the page number in the book, where plants within the same plant association are listed. There are many symbiotic relationships that occur in nature and it is usually best to plant a species with other species with which it grows in native landscapes.

Comments contain other useful and interesting bits of information about the plant; a summary of comments by the authors and advisory board members. Also mentioned under this heading are related native species that may have some landscape value, but were not considered important enough to warrant an entire page of discussion and a photograph.

A GUIDE TO NATIVE UTAH PLANTS AND THEIR USE IN THE LANDSCAPE



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Barnes, Johnson, Kjelgren, Mee, and Sutton


Center for
Water-Efficient
Landscaping

A GUIDE TO UTAH NATIVE PLANTS AND THEIR USE IN THE LANDSCAPE

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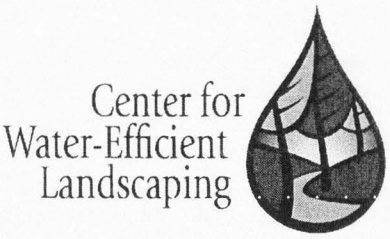

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Phil Allen - Professor, Department of Agronomy and Horticulture, Brigham Young University, Provo, UT

David Bell - Associate Professor and Extension Landscape Architect, Department of Landscape Architecture and Environmental Planning, Utah State University, Logan, UT

Susan Meyer - Research Ecologist, USDA Forest Service, Rocky Mountain Research Station Shrub Sciences Laboratory, Provo, UT

Paula Mohadjer - Horticulture and Conservation Specialist, Jordan Valley Water Conservancy District, West Jordan,UT

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Bill Varga - Director of Utah Botanical Gardens, Research Associate, Department of Plants, Soils, Biometeorology, Utah State University, Logan, UT

Oliver Grah was gracious enough to allow the use of plant association material from Nature Area Revegetation Manual for Salt Lake County compiled by his firm Ecotone Environmental Consulting. A special thanks to research assistants and co-authors, **Jared Barnes** and **Wendy Mee**, who did the literature research on the plant species added to this edition. Thanks also to **Richard Sutton** who enthusiastically supported efforts to expand on his first edition research. Their rigor, dedication, enthusiasm, and persistance exemplify the true meaning of scholarship.

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Utah precipitation data was provided by **Donald T. Jensen** (Director of the Utah Climate Center, USU) and Utah GIS gap data was provided by **Kimberly Karish** (Biodiversity Laboratory, Department of Fisheries and Wildlife, USU). Clerical help was provided by **Kylie Barnes**, **Kirsten** and **Kajsa Kjelgren**, and **Ardith Poulsen**. **Jared Barnes** artfully integrated the graphic materials and text in laying out the publication.

We thank the **Center for Water Efficient Landscaping**, the **Mariner S. Eccles Foundation,** and the **Department of Landscape Architecture and Environmental Planning** for their generous support of this effort.

Preface - Second Edition

Center for Water-Efficient Landscaping

In 1974, Richard Sutton, a graduate student in Landscape Architecture and Environmental Planning at Utah State University completed a thesis entitled, "An Investigation into the Design Qualities, Ecological Requirements, and Potential Use of Some Native Trees & Shrubs of the Mountains of Northeastern Utah."

Lists of native trees and shrubs along with other material in this thesis were incorporated into Landscape Plants from Utah's Mountains (Sutton and Johnson, 1975), published by the Utah State University Extension Service. The publication was extremely popular, reprinted twice but never updated or expanded.

During the 1970's, native plants and water conservation were topics of interest to a small but dedicated group of native plant enthusiasts and conservationists. Today a much larger segment of Utah's population is interested in these subjects. They want to learn more about native plants and how they can be used to conserve water, preserve the region's landscape character, and protect its ecological integrity.

Why this changing attitude? Growth, at an unprecedented rate, is transforming native Utah landscapes into patches of bluegrass, exotic trees, and ornamental shrubs. To sustain exotic vegetation and altered landscapes, increased demands are being placed on Utah's finite water supply. It's estimated that 65 percent of culinary water used during the summer months goes to irrigate landscapes. Increased demand has forced water providers to raise prices and initiate educational programs to reduce water consumption. These issues are so pervasive they have become a public concern across the state and throughout the Intermountain region.

In the wake of this growing concern, requests for Landscape Plants from Utah's Mountains (now out of print) and for sources of information about native grasses and forbs (not included in that publication) have increased dramatically. The second addition, retitled A Guide to Utah Native Plants and Their Use in the Landscape, has been expanded and updated in part as a response to public demand. Sections on the physiology of desert plants and Utah plant associations have been added. Plant material information has been updated where necessary and descriptions for native grasses and forbs have been included. The second addition also includes photographs that capture the characteristics of each plant and highlight its special features.

The information in the first edition and this publication come from a variety of sources. The authors of this publication are indebted to these botanists, taxonomists, horticulturists, landscape architects, and other plant professionals who have published their work. A bibliography has been added at the back of this publication for specific reference information.

Users Guide

This publication provides specific information about trees, shrubs, grasses, and forbs native to northern and central Utah. It is intended as a reference for the general public as well as landscape architects, urban foresters, restorationists, horticulturists, and others in the nursery industry. The primary objective of this publication is to reduce the quantity of water used to sustain outdoor landscapes by promoting the intelligent use of low water consuming native species. Additional objectives include:

- Encourage the public and landscape professionals to preserve, enhance, restore, and recreate native plant communities.
- Provide an easily accessible source of accurate native plant information including photographic images of each species.
- Provide species specific and general plant association information that will aid publication users in matching plant choices with growing conditions, functional needs, and aesthetic goals.
- Encourage the landscape industry to propagate a greater diversity of native plants and make them commercially available.

For the convenience of the reader, plants have been organized into two categories based on physical characteristics; **trees and shrubs** or **grasses and forbs**. Within each broad category, plants are listed in alphabetical order based on the scientific name of the species. For each tree or shrub species, information has been organized into four general categories: **appearance, natural habitat, landscape use, and comments.**

These categories were modified slightly for grasses and forbs to accommodate the distinctive characteristics of non-woody plants. Also for each genus of a grass or forb with many species, a detailed discussion of the general characteristics of the genus and its habitat is presented. For each species within a genus, an abbreviated discussion highlighting its unique features follows.

The reader is advised to pay particular attention to plant habitat and culture. Native plants have the best chance for survival if they are planted in situations similar to their natural habitat. Also note the companion plants section in the landscape use category. Consider making compositions of associated species; they grow together naturally, have similar soil and water requirements, and project a natural aesthetic quality.

Using native plants is only one component of water-wise landscaping. Others include:

- Design
- Water zoning
- Irrigation design
- Soil preparation
- Planting
- Mulch
- Maintenance
- Monitoring

These topics are beyond the scope of this publication. However, a number of excellent references are available. Listed on the next page are some examples.

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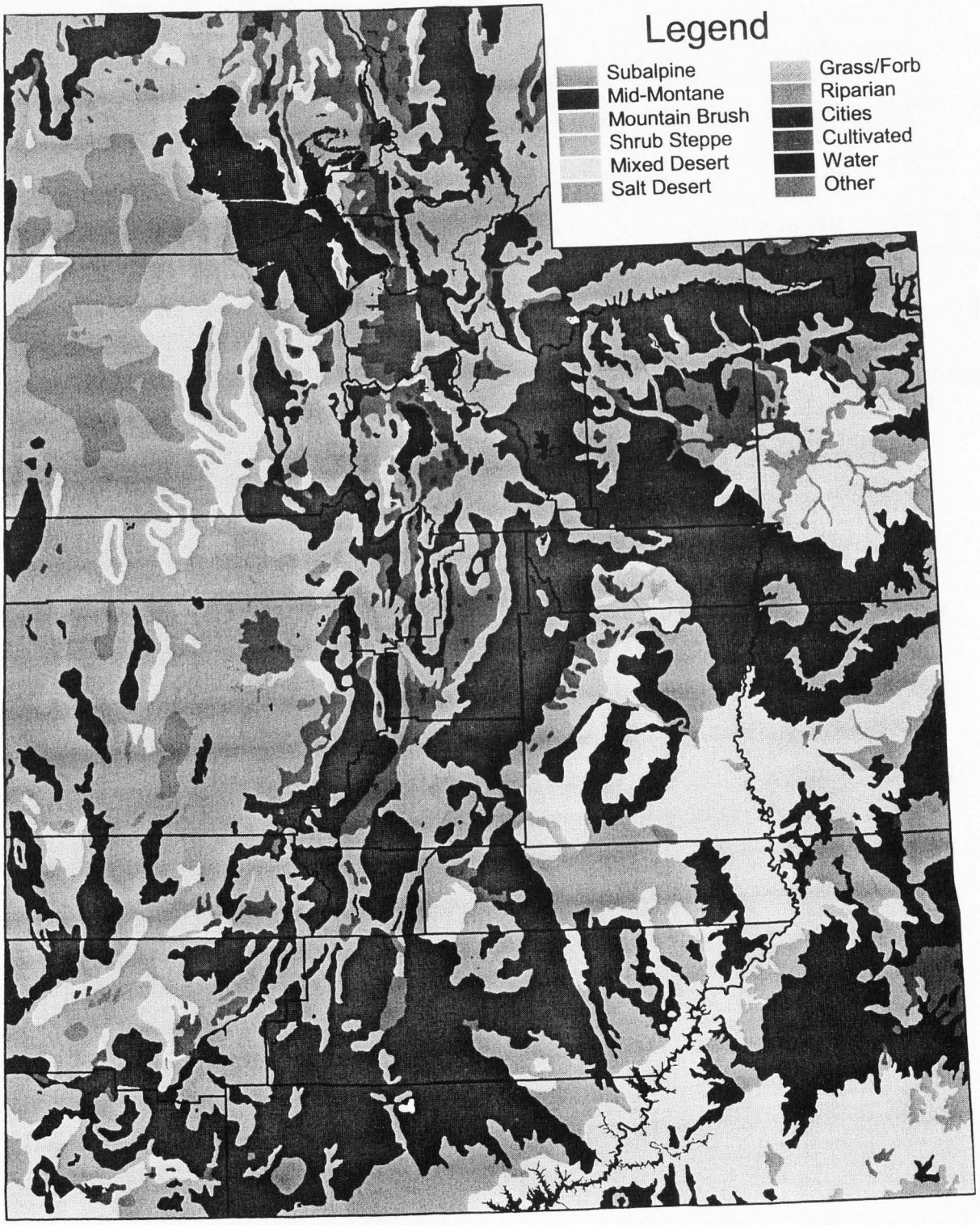
Utah Plant Associations



Map created by Jared Barnes.

Plant Association Descriptions

(adapted from Salt Lake County Nature Area Revegetation Manual, Ecotone Environmental Consulting, Inc., Logan, Utah [1995])

Center for Water-Efficient Landscaping

Paying careful attention to plant associations, species composition, vertical and horizontal structure, and species response to microclimate and physical features is often key to successfully designing with native plants. The following section describes and illustrates nine distinct Utah plant associations. Additional information about wetland plant associations is also included.

In the natural landscape plants, animals, fish, and invertebrates have evolved over thousands of years into complex highly interdependent communities. Climate, topography, elevation, aspect, soils, hydrology, and other non-living elements create the conditions in which living organisms reside. Living organisms like plants and animals interact with each other and the physical environment which over time they in turn modify. Plants in a community with similar requirements for water, sunlight, soil type, elevation, and aspect grow together in association; for example, the shrub steppe and mixed desert scrub associations. The boundaries between plant associations are often subtle. Transitions between associations are called ecotones. Typically ecotones include species from both associations dispersed across a gradient from one association to another.

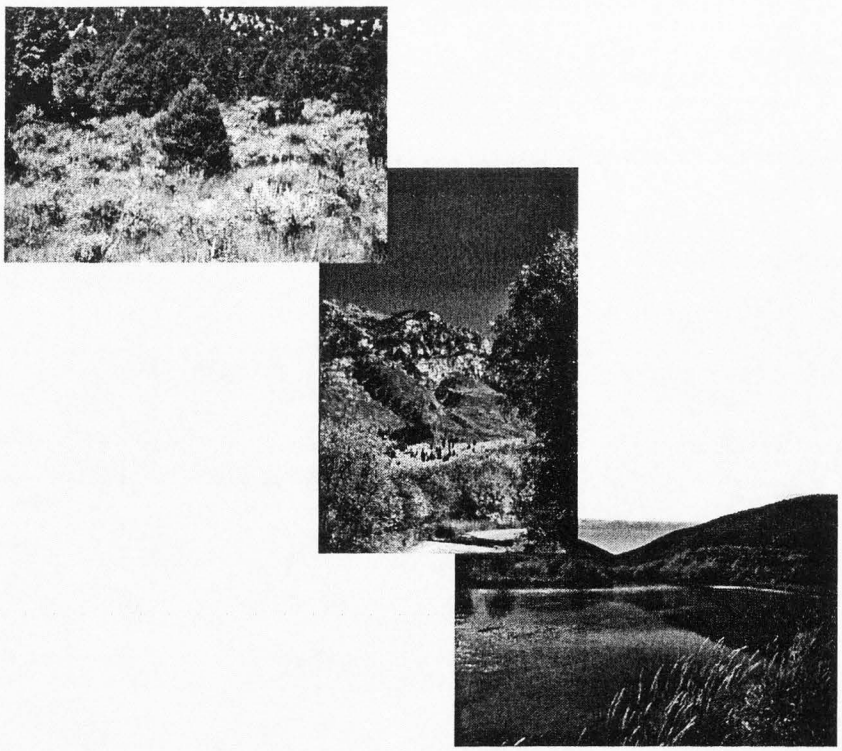
The planting designer would be well advised to select plants from a plant association that thrives in climatic and physical conditions similar to those of the site being planted. Often this will be the plant association that historically grew on the site. Soil type and conditions are variable with each plant association and should be researched for each site and compared with individual species preferences and restrictions. Further, if the designer desires to create a natural looking landscape, the composition of plants should reflect the vertical and horizontal structure of the plant association. The plant association photographs and generalized plan views and elevation drawings in this section graphically illustrate the structural characteristics of each association. The reader may find the illustrations useful as conceptual planting design templates.

UPLAND
Subalpine
Mid-Montane
Mountain Brush
Shrub Steppe

LOWLAND
Mixed Desert Scrub
Salt Desert Scrub
Grass/Forb

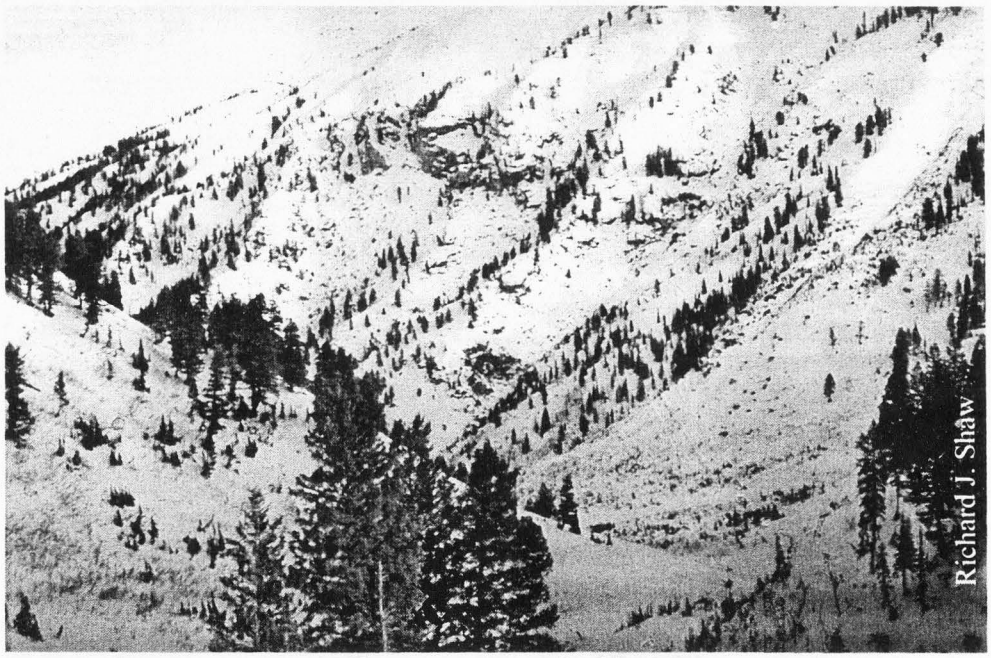
RIPARIAN
Riparian Forest
Riparian Shrub

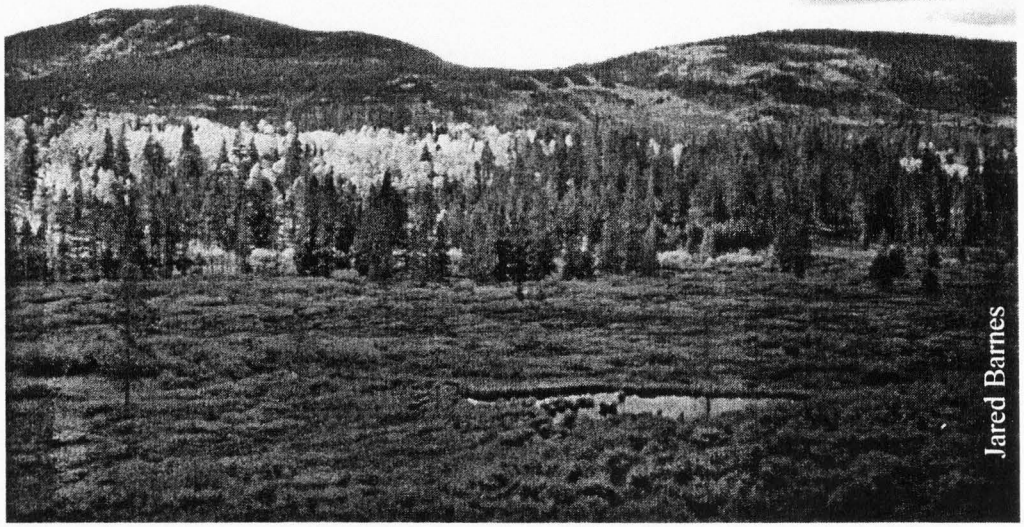
WETLAND
Wet Meadow
Marsh
Mudflat/Playa
Aquatic Bed
Open Water/Riverine

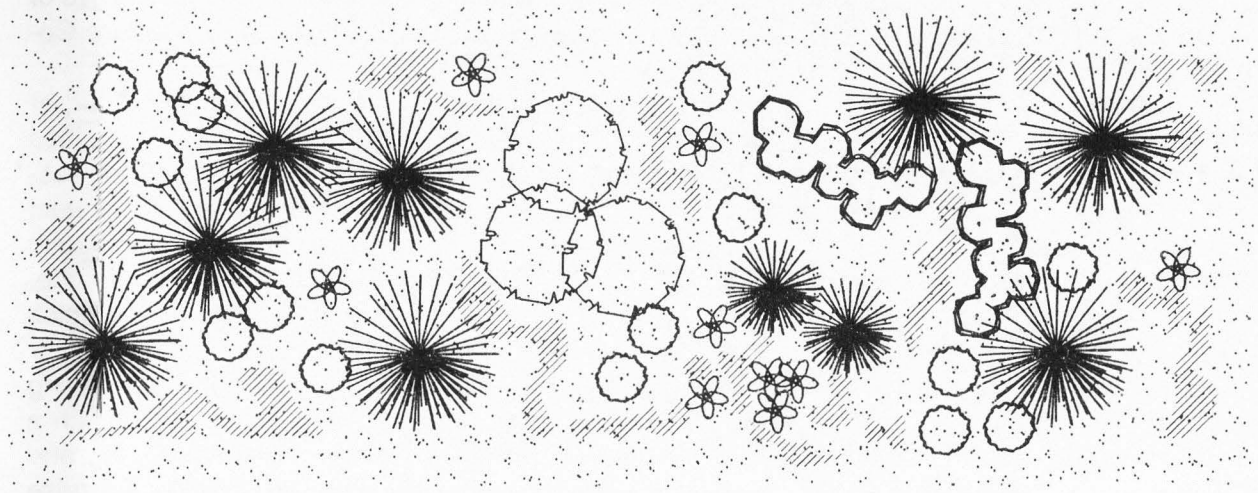


Subalpine

A generalized elevation range for the subalpine plant association in Utah is between 8,000 feet and 11,000 feet. The annual precipitation ranges from 20 inches to greater than 40 inches. This association typically has more than 30 percent forest cover, of which 70 percent or more is conifer. Representative species include Douglas fir, white fir, subalpine fir, and Engelmann spruce. Quaking aspen is also common in this association. Limber pine and lodgepole pine occur at low frequency. On the dry south- and west-facing slopes, the primary tree species is Douglas fir. Shrub species typical of the dry mountain brush and shrub steppe associations dominate the shrub understory. On northeast slopes, Douglas fir is replaced by subalpine fir and Engelmann spruce with a rich mixture of understory species such as mountain ash, blue elderberry, mountain snowberry, bracken fern, Colorado columbine, glacier lily, western coneflower, sticky geranium, common dandelion, western yarrow, false-hellebore, nettleleaf giant hyssop and slender wheatgrass. Total vegetal cover is moderately dense to dense (65 to 90 percent).







Plan View - Typical Subalpine Plant Association

Section - Typical Subalpine Plant Association

Mid-Montane

A generalized elevation range for the mid-montane plant association in Utah is between 5,000 feet and 9,000 feet. The annual precipitation ranges from 12 inches to 20 inches. This association integrates with the subalpine association at the higher elevations and on north facing slopes, with the mountain brush association across much of its range, and with the shrub steppe association at its lower elevational limits. Four plant community types are representative of this association, reflective of different environmental conditions. These community types are the Montane Parkland, Montane Coniferous Forest, Aspen Forest, and Montane Meadow.

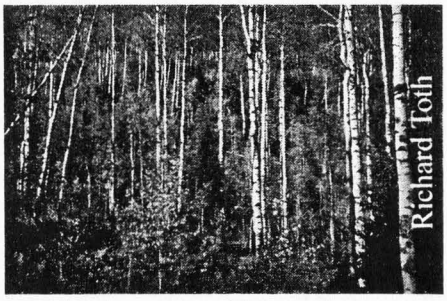
The Montane Parkland is typified by open stands of ponderosa pine, pine with Douglas fir, or of Douglas fir, which is the most common in northern Utah. The pinyon-juniper community also typifies the parkland type at the lower end of the elevation range, with pinyon increasing and juniper decreasing with elevation. The pinyon-juniper parkland type is usually represented on the drier south and west facing slopes. The understory consists of a sparsely distributed shrub layer, comprised of plants such as currants, bearberry, and mountain mahogany. A mixture of bunch grasses such as Idaho fescue, junegrass, Indian ricegrass, oatgrass, needlegrass, and pine dropseed along with buckwheat species and cacti typify the ground layer. Total vegetal cover is low to moderate (30 to 65percent).

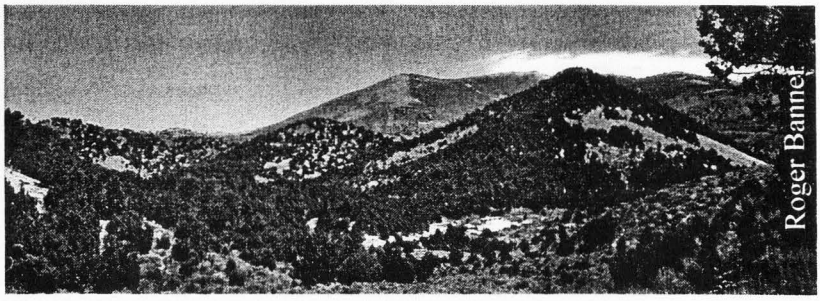
The Montane Coniferous Forest dominates the higher elevations and north and east facing slopes of this association. Douglas fir is the dominate tree species and forms dense stands with a dense understory comprised of shrubs such as ninebark, currant, snowberry, mountain lover, and rose. Shade tolerant herbaceous species such as columbine and bluebells and *Poa* species comprise the ground layer. Lodgepole pine also forms dense stands, often on quartzite soils or in areas having undergone some form of disturbance. Understory composition is dependent upon the density of the stand, and is sparse in very dense stands. Total vegetal cover is moderately dense to dense (65 to 90 percent).

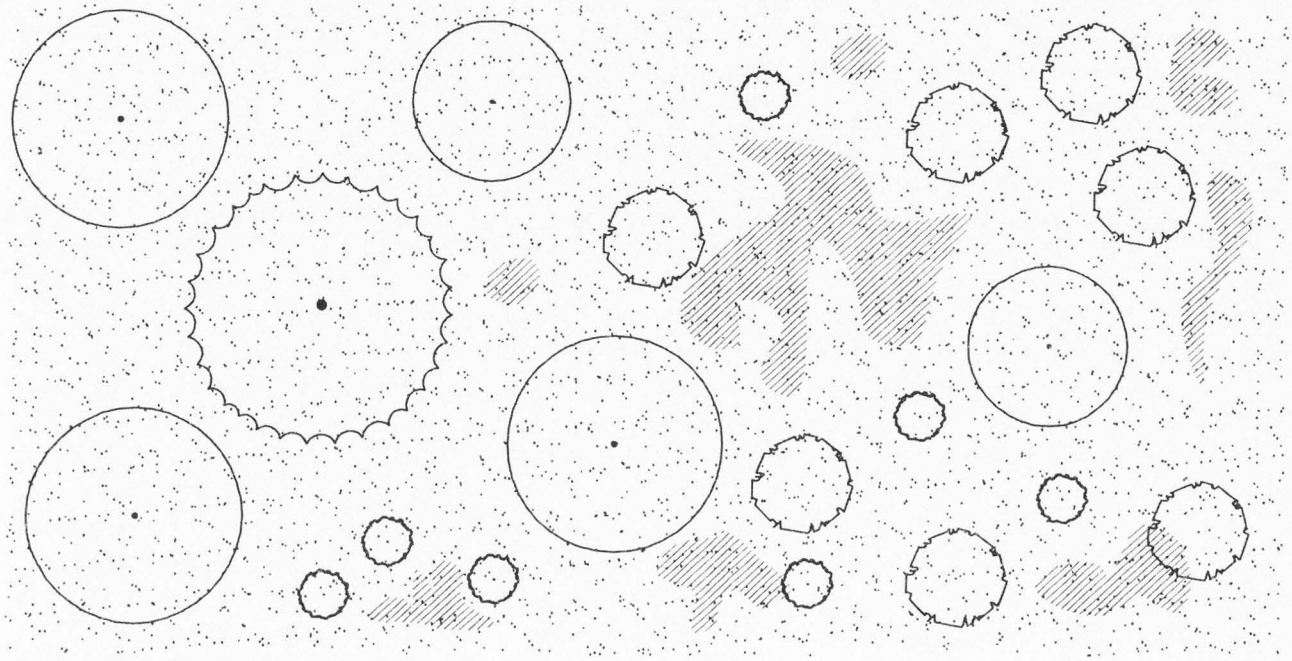
The Aspen Forest is typified by groves of aspen and is generally located within montane riparian zones or on sites having undergone some form of disturbance. Other deciduous tree species such as river birch, alder, or cottonwood may also be present. Dependent upon the density of the groves, a rich mixture of understory species completes the community type. The shrub layer is comprised of such species as mountain ash, snowberry, rose, ninebark, and common juniper. The ground layer is composed of a mixture of tall forbs such as delphinium, sticky geranium, and goldenrod, with mountain brome and elk sedge representative of the grasses and sedges.

The Montane Meadow community dominates openings within the Montane Coniferous and Aspen Forest zones. A broad mixture of herbaceous species, bulbous species, grasses, and sedges comprise these meadows, the composition varying according to soil moisture. Such species as Indian paintbrush, asters, sticky geranium, heartleaf arnica, wild sweetpea, leafy Jacob's ladder, slender cinquefoil, mule's ear, wild hyacinth, camas, and yellow bells with species of brome, rye, onion grass, oatgrass, and tufted hairgrass typify this community.

Rocky outcroppings within this association support tree and shrub species such as limber pine, curl-leaf mountain mahogany, cliff Jamesia, and tufted rockmat along with crevice and rock dwelling forbs such as some penstemon species, astragalus species and grass species such as Sandberg bluegrass, needlegrass, and Indian ricegrass.







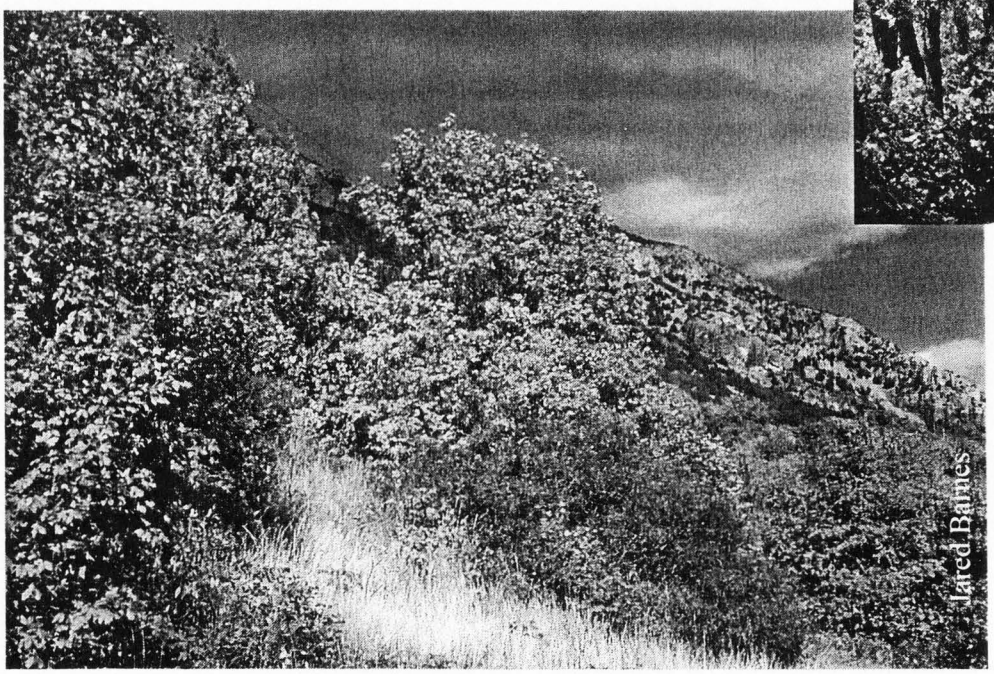
Plan View - Typical Mid-Montane Plant Association

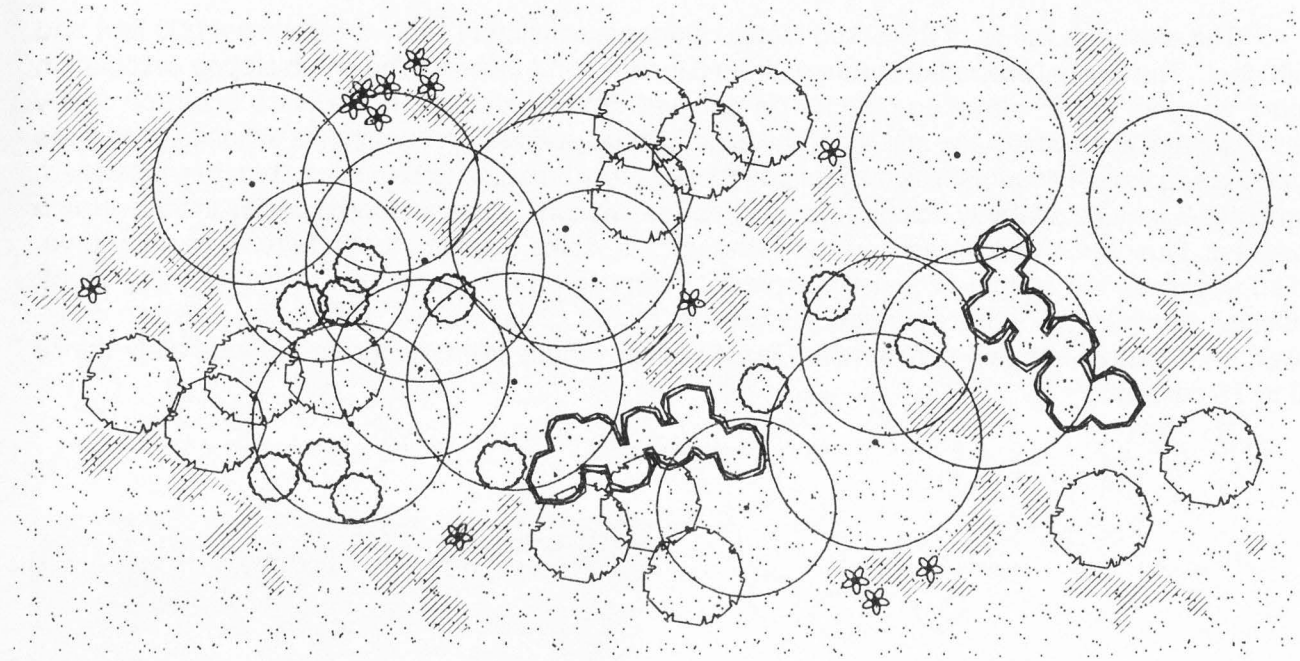
Section - Typical Mid-Montane Plant Association

Mountain Brush

The elevation range of the mountain brush plant association in Utah is between 4,000 feet and 7,000 feet. The annual precipitation ranges from 16 inches to 25 inches. Two general types of mountain brush occur in northern and central Utah: dry and wet mountain brush. Dry mountain brush occurs on west- and south-facing slopes at lower elevations and consists of areas dominated by stunted Gambel oak and occasional bigtooth maple. Rocky Mountain juniper and Utah juniper are common small trees in this association in northern Utah; Gambel oak declines north of Weber County. Mountain big sagebrush and mountain snowberry are common shrub species. Other shrubby species include curl-leaf mountain mahogany, snowbrush ceanothus, serviceberry, dwarf Oregon grape, and Wood's rose. Understory species in dry mountain brush associations are typical of the shrub steppe association. Total vegetal cover ranges from moderate to dense (45 to 75 percent).

Wet mountain brush occurs in areas with more favorable soil moisture and deeper soils, usually on north-facing slopes at lower elevations. Bigtooth maple, Wood's rose, chokecherry, and mountain snowberry are the primary shrubby species. Mountain ash, Rocky Mountain maple, and Scouler's willow occur in isolated clumps in the wetter mesic sites. Typical understory species include dwarf Oregon grape, mountain lover, Wheeler bluegrass, mountain brome, slender wheatgrass, nettleleaf gianthyssop, bluebells, heart-leaved arnica, geranium, Nutall's violet, carpet phlox, scarlet gilia, silvery lupine, daisies, and thickstemmed aster. Total vegetal cover is moderately dense to dense (65 to 90 percent).



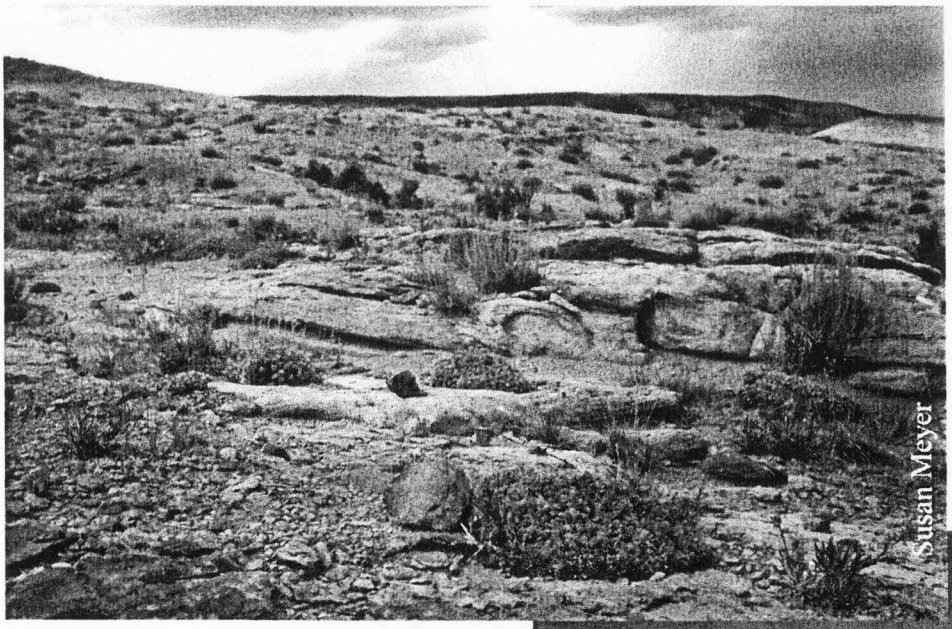


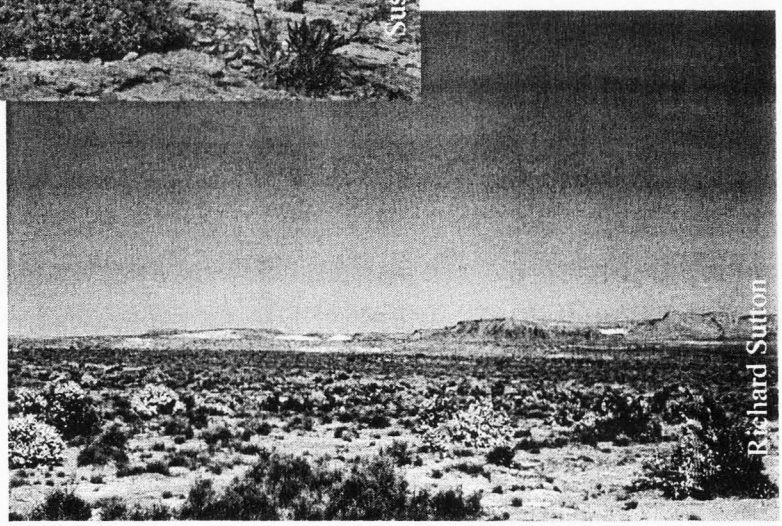
Plan View - Typical Mountain Brush Plant Association

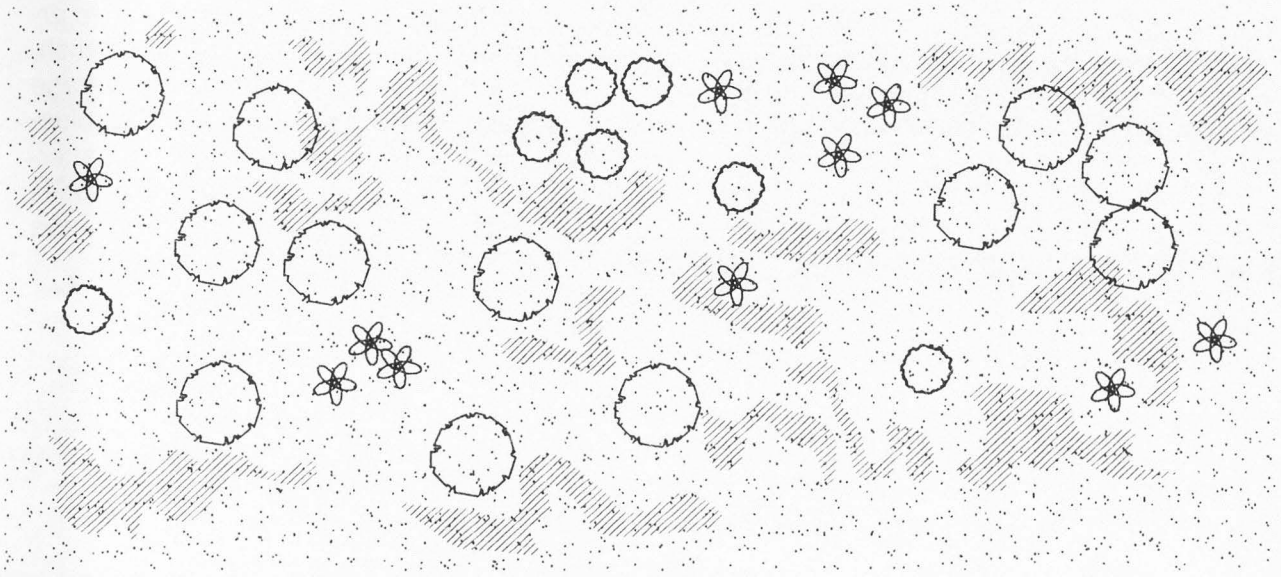
Section - Typical Mountain BrushPlant Association

Mixed Desert Scrub

The elevation range of the mixed desert scrub plant association in Utah is between 4,000 feet and 7,000 feet. The annual precipitation ranges from 6 inches to 10 inches. Areas of mixed desert scrub occupy internally drained areas and mudflat areas on low lake terraces that are better drained. Shrub species are similar to those found in the salt desert scrub association except that greasewood occurs with greater dominance and iodinebush is no longer present or is present at reduced levels. Other typical shrubs include broom snakeweed, Gardner saltbush, basin saltbush, and shadscale. Understory and intershrub areas support such species as saltgrass, pickleweed, Indian ricegrass, Salina wildrye, fleabane, and clasping pepperweed. On the average for both mixed desert and salt desert scrub associations, shrub density ranges from 20 to 80 percent cover. Intershrub groundcover ranges from 35 to 55 percent. Cheatgrass, an undesirable invasive exotic, and wheatgrass seeded for forage may dominate large areas.





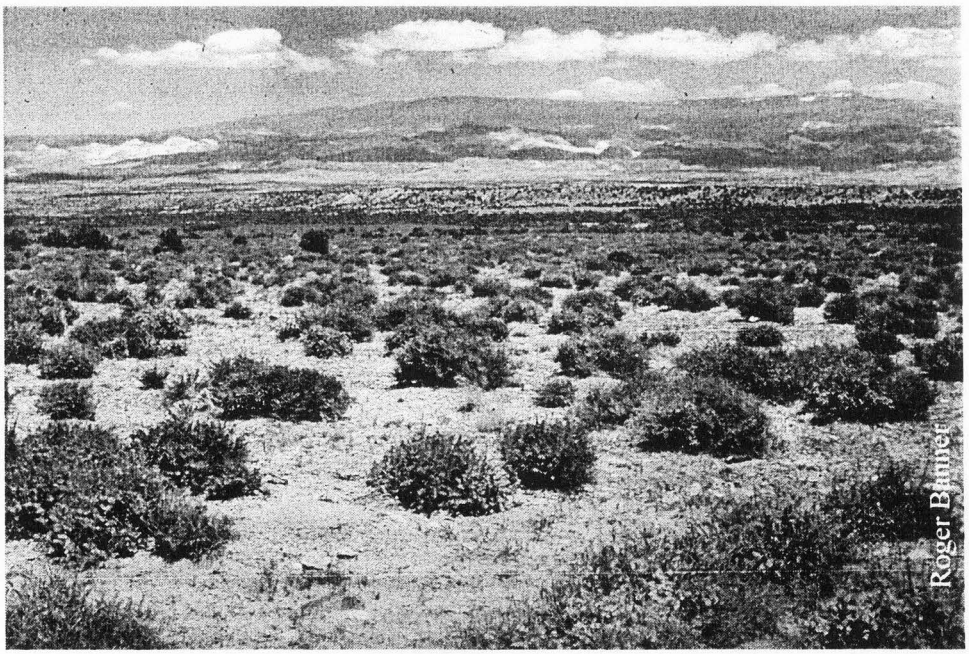


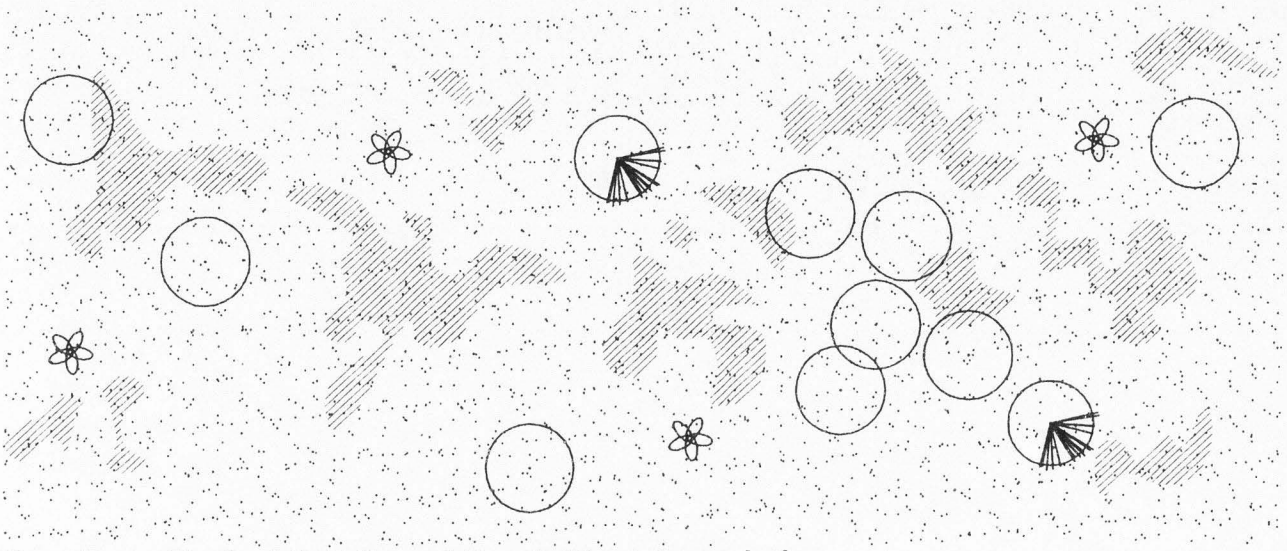
Plan View - Typical Mixed Desert Plant Association

Section - Typical Mixed Desert Plant Association

Salt Desert Scrub

The elevation range of the salt desert scrub plant association in Utah is between 4,000 feet and 6,500 feet. The annual precipitation ranges from 4 inches to 10 inches. On the old lake plains and alluvial flats, salt desert scrub vegetation occurs in topographically elevated positions above areas of alkali wet meadow or mudflat/playa. Shrub species include iodinebush, rubber rabbitbrush, broom snakeweed, Gardner saltbush, basin saltbush, shadscale, and black greasewood. Average shrub height is 2½ feet. Intershrub areas are typically vegetated with such species as alkali bluegrass, alkaligrass, foxtail barley, squirreltail, scratchgrass, saltgrass, and alkali sacaton. In better-irrigated or subirrigated areas, non-natives such as smooth brome, timothy, and other pasture grasses occur in the understory. Within this cover type, Russian olive and tamarisk, both undesirable invasive tree species, are found adjacent to ditches and fencelines.



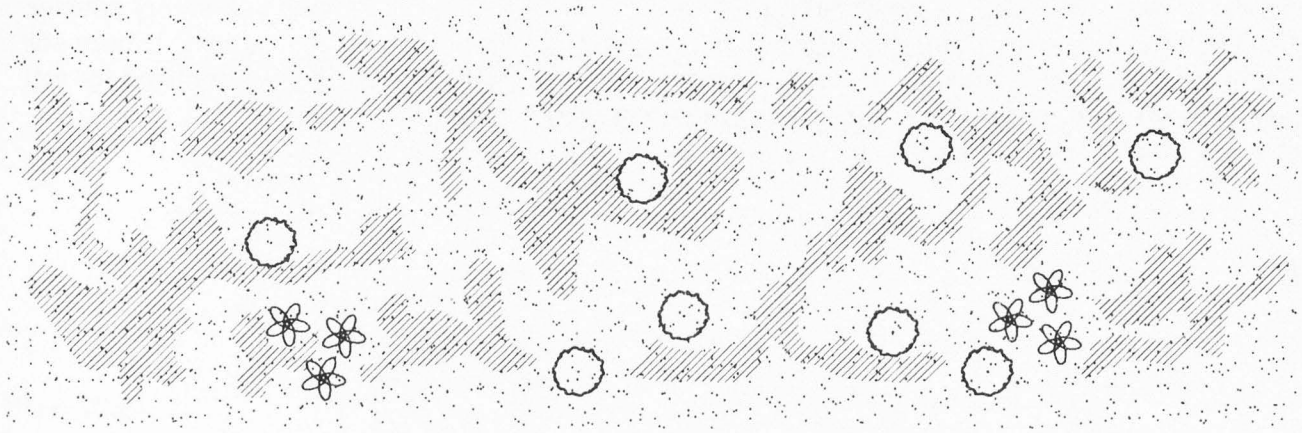


Plan View - Typical Salt Desert Scrub Plant Association

Section - Typical Salt Desert Scrub Plant Association

Grass/Forb

The elevation range of the grass/forb plant association in Utah is between 3,000 feet and 5000 feet. The annual precipitation ranges from 6 inches to 15 inches. Areas of the grass/forb association occur on the rolling foothills, lake terraces, and alluvial fans, within improved and/or irrigated pasturelands, and in intershrub areas of the lower level lake terraces. The dominant grass species vary with location and condition. Typical grasses include bluebunch wheatgrass, western wheatgrass, tall wheatgrass, foxtail barley, and needle-and-thread grass. Non-native grasses such as orchardgrass, smooth brome, and Kentucky bluegrass are common. In some areas, saltgrass and non-natives cheatgrass, Japanese brome, and/or reed canarygrass approach codominance. Forbs include Utah milk-vetch, globemallow, and blue flax.



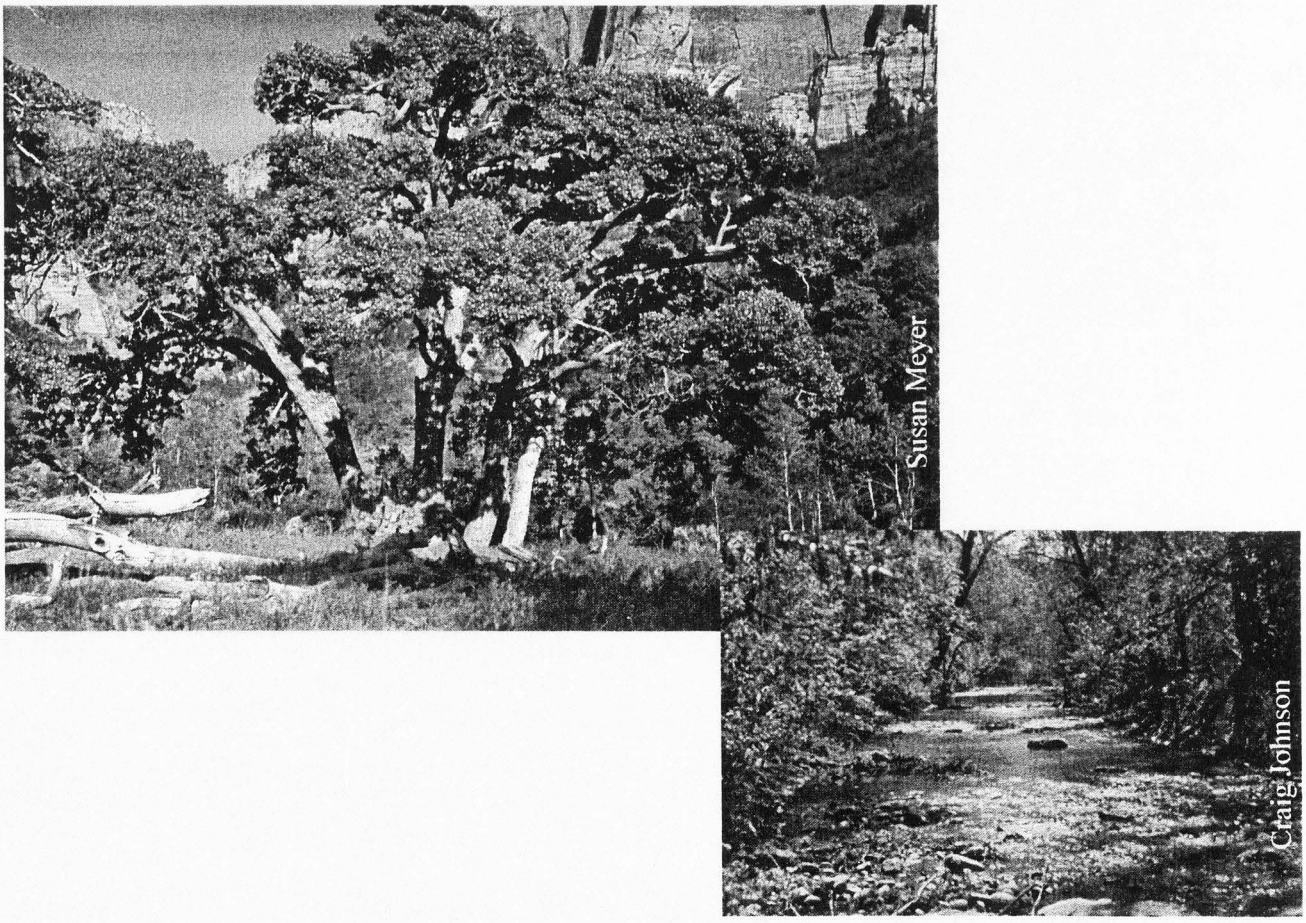
Plan View - Typical Grass/Forb Plant Association

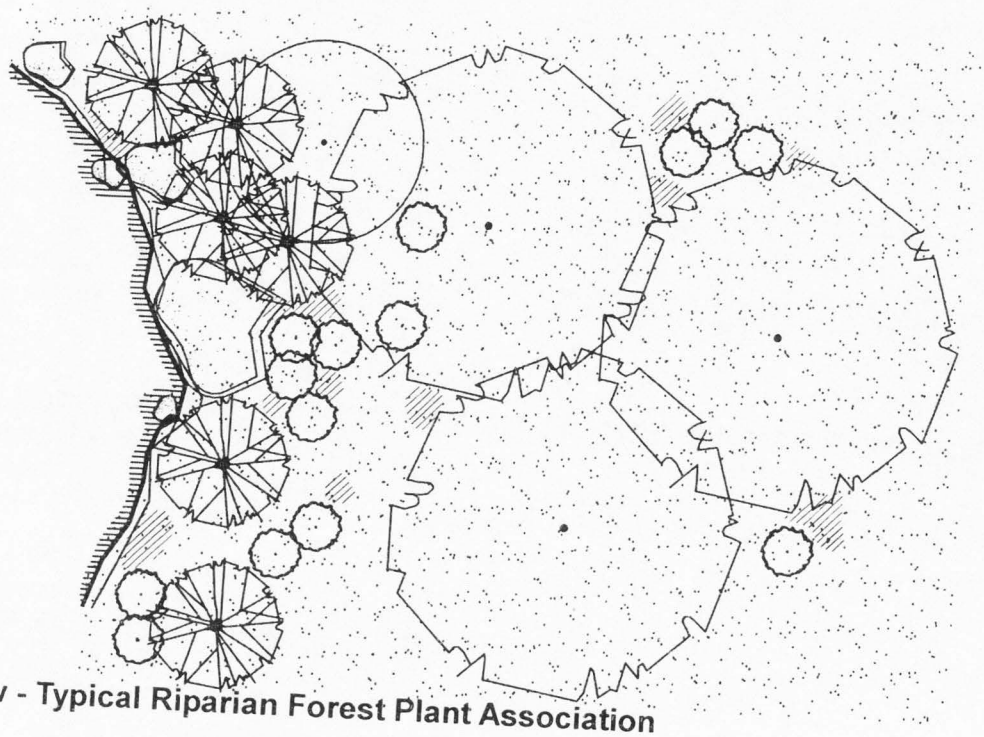
Section - Typical Grass/Forb Plant Association

Riparian Forest

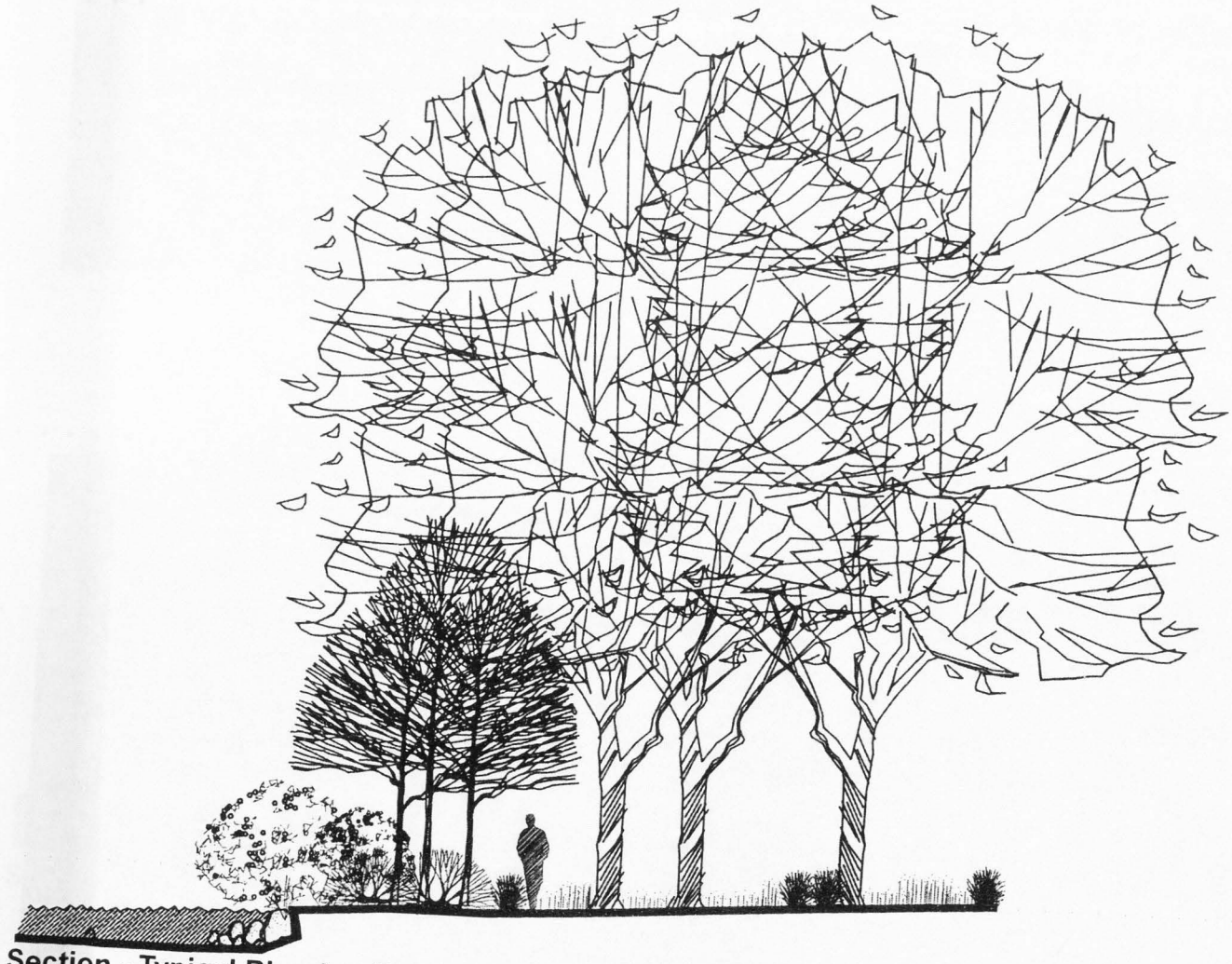
The elevation range of the riparian forest plant association in Utah is between 3,000 feet and 9,000 feet. The riparian forest association is easily identifiable by the dominant tree overstory, typically of cottonwood species. Other tree species may include Siberian elm, a non-native invasive species, and lesser trees such as boxelder and Douglas hawthorne. This association generally has an average crown cover of 45 percent. Trees are up to 120 feet tall. An intermediate riparian shrub layer may be present.

There are two phases within this association. The dry riparian forest has understory species similar to those described for the dry riparian shrub association or grass/forb association. Where soil moisture is greater, the wet riparian forest has understory species similar to those identified for wet riparian shrub association and/or the fresh wet meadow association.





Plan View - Typical Riparian Forest Plant Association



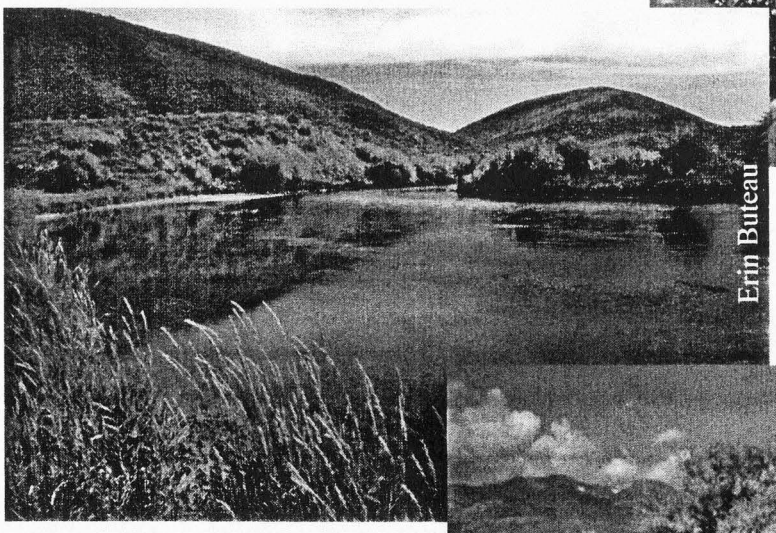
Section - Typical Riparian Forest Plant Association

Riparian Shrub

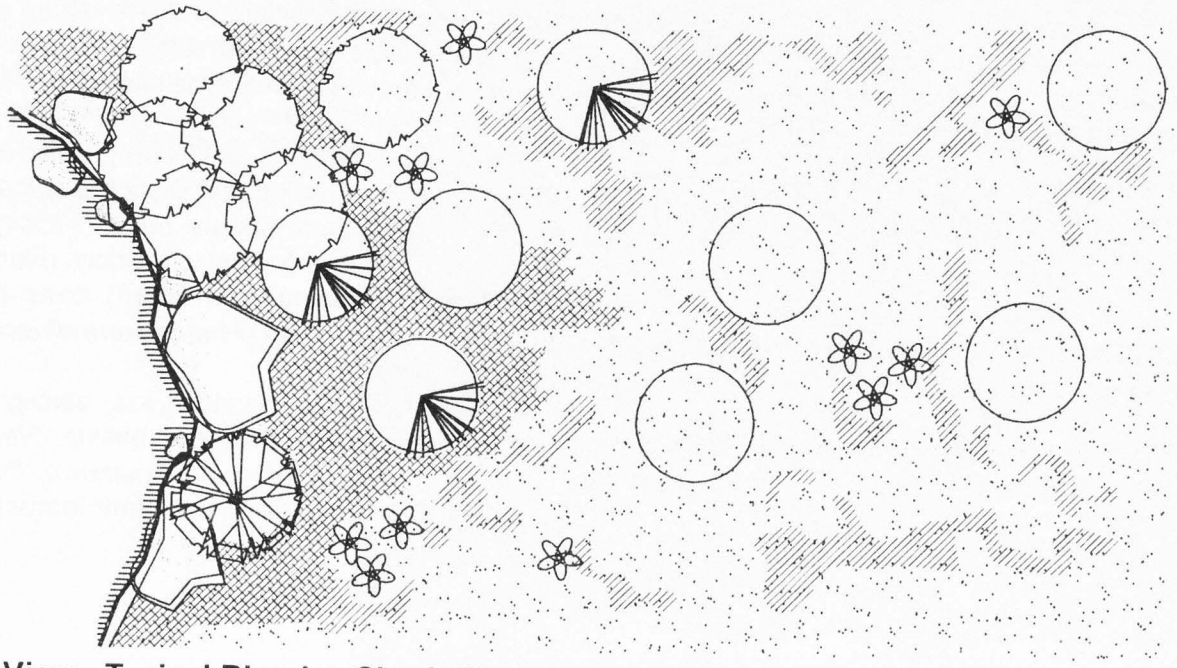
The elevation range of the riparian shrub plant association in Utah is between 4,000 feet and 10,000 feet. Riparian shrub areas have a dominant overstory of woody mid-sized shrub species. Shrub height is typically around 7 feet. This cover type is associated with streams and rivers as well as the banks of drainage and irrigation ditches. Vegetal cover ranges from 80 to 100 percent. There are two phases based on the degree of soil moisture. The dry phase supports small trees such as Russian olive, an invasive exotic, and boxelder, and shrubs such as Wood's rose and dog rose. Understory species are typical of the montane meadow cover type. This phase occurs with greater frequency in the valley bottom.

In contrast, the wet phase may occur in the valley bottom but it also occurs along drainages in the lower foothills and mountains. Shrub species may be similar to those in the dry phase; however there is an added component of more hydrophytic species, including sandbar willow, Douglas hawthorne, red-osier dogwood, mallow ninebark, and Rocky Mountain maple. The understory in the wet phase has species typical of the wet meadow cover type, but may also include false Solomon's seal, shooting star, and western monkshood. Tamarisk, a non-native invader, is spreading rapidly and dominating some riparian shrub communities.


Craig Johnson


Erin Buteau


Jared Barnes



Plan View - Typical Riparian Shrub Plant Association

Section - Typical Riparian Shrub Plant Association

Wet Meadow

The wet meadow association occupies topographic swales and positions where the land surface is in proximity to the water table and may intersect the water table during the early portion of the growing season. Based on the degree of alkalinity/salinity, the wet meadow cover type has two phases: fresh and alkali wet meadow. Vegetal cover for each phase is typically 60 to 100 percent.

Species in the areas of fresh wet meadow may include redtop (*Agrostis stolonifera*), Baltic rush (*Juncus balticus*), annual rabbit's-foot grass (*Polypogon monspeliensis*), saltgrass (*Distichlis spicata*), Nebraska sedge (*Carex nebrascensis),* water sedge (*C. aquatilis*), three-square bulrush (*Scirpus pungens*), showy milkweed (*Asclepias speciosa*), foxtail barley (*Hordeum jubatum*), curly dock (*Rumex crispus*), scratchgrass (*Muhlenbergia asperifolia*), lambsquarters (*Chenopodium album*), coast-blite goosefoot (*C. rubrum*), and western lettuce (*Lactuca* sp.). Reed canarygrass (*Phalaris arundinacea*), a non-native species, frequently dominates fresh wet meadow sites.

Typical species for areas of alkali wet meadow include saltgrass, scratchgrass, alkaligrass (*Puccinellia* sp.), foxtail barley, Mediterranean barley (*Hordeum hystrix*), five-hook bassia (*Bassia hyssopifolia*), saltmarsh dodder (*Cuscuta salina*), seaside arrowgrass (*Triglochin maritimum*), Pursh seepweed (*Suaeda calceoliformis*), lambsquarters, coast-blite goosefoot, tall tumblemustard (*Sisymbrium altissimum*), and western lettuce.

Marsh

In marsh areas, water covers the ground surface for a longer portion of the growing season than in the wet meadow cover type. Surface water depth ranges from 1 to over 6 inches deep but is not deep enough to check growth and survival of emergent plants. The increase in the amount and duration of saturation produces a decrease in salinity through dilution. Dominant species vary depending on the degree of salinity. Species include cattails (*Typha latifolia* and *T. angustifolia*), common threesquare (*Scirpus pungens*), hardstem bulrush (*Scirpus acutus*), alkali bulrush (*S. maritimus*), common reed (*Phragmites australis*), spikerush (*Eleocharis* sp.), and annual rabbit's foot grass as well as species common to the fresh wet meadow cover type. Vegetal cover is typically over 70 percent.

Mudflat/Playa

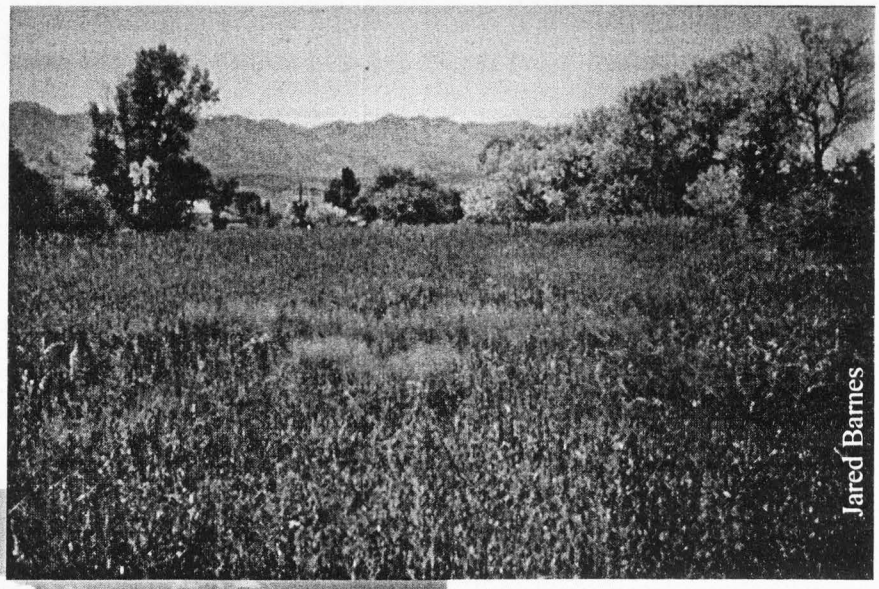
The playa/mudflat cover type occurs in the topographically lowest positions that typically have internal drainage. Water typically will pond following precipitation events or runoff; due to the high clay content of the soil, the surface ponds water readily. The water depth is generally less than 4 inches deep. As such, this cover type may be an open water site during portions of the year. Most of the ponded water is removed through evaporation. Because of this, mudflat/playa areas tend to be highly saline/alkaline. This cover type supports limited vegetation (5 to 35 percent cover). When present, vegetation typically occurs around the outside margins of the mudflat area and consists of saltgrass, alkaligrass, seepweed (*Suaeda* sp.), and pickleweed (*Salicornia* sp.). Scattered (generally <20 percent) iodinebush (*Allenrolfea occidentalis*) may also occur within this cover type.

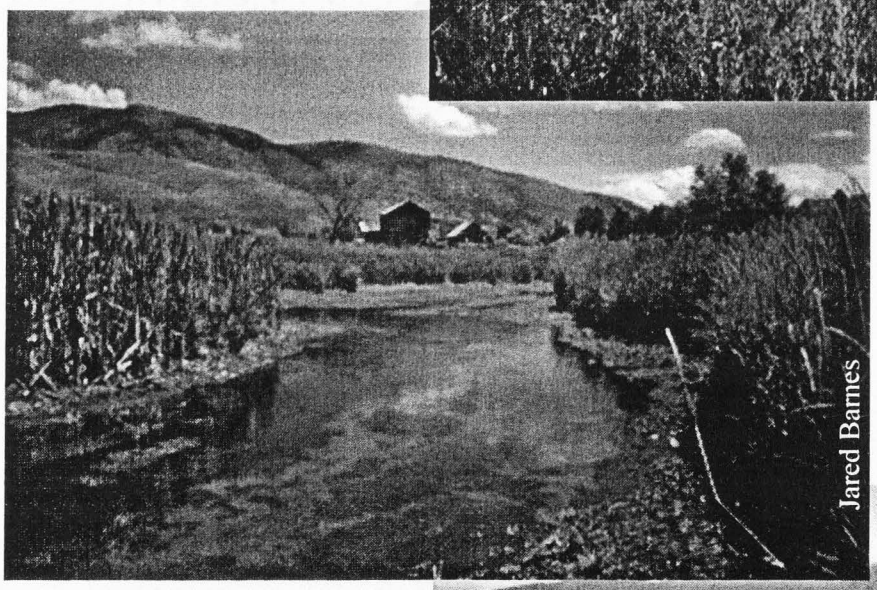
Aquatic Bed

Aquatic bed includes areas of ponded water less than 6.5 feet deep that support underwater or floating-leaved plants due to the non-moving environment. Areas of aquatic bed occur within the existing canals and ditches as well as slack-water areas of creeks and streams. Species include watercress (*Nasturtium officinale*), arrowhead (*Sagittaria* sp.), duckweed (*Lemna* sp.), and pondweed (*Potamogeton sp.*). Due to seasonal water fluctuations, areas that support aquatic bed vegetation may have marsh vegetation later in the growing season.

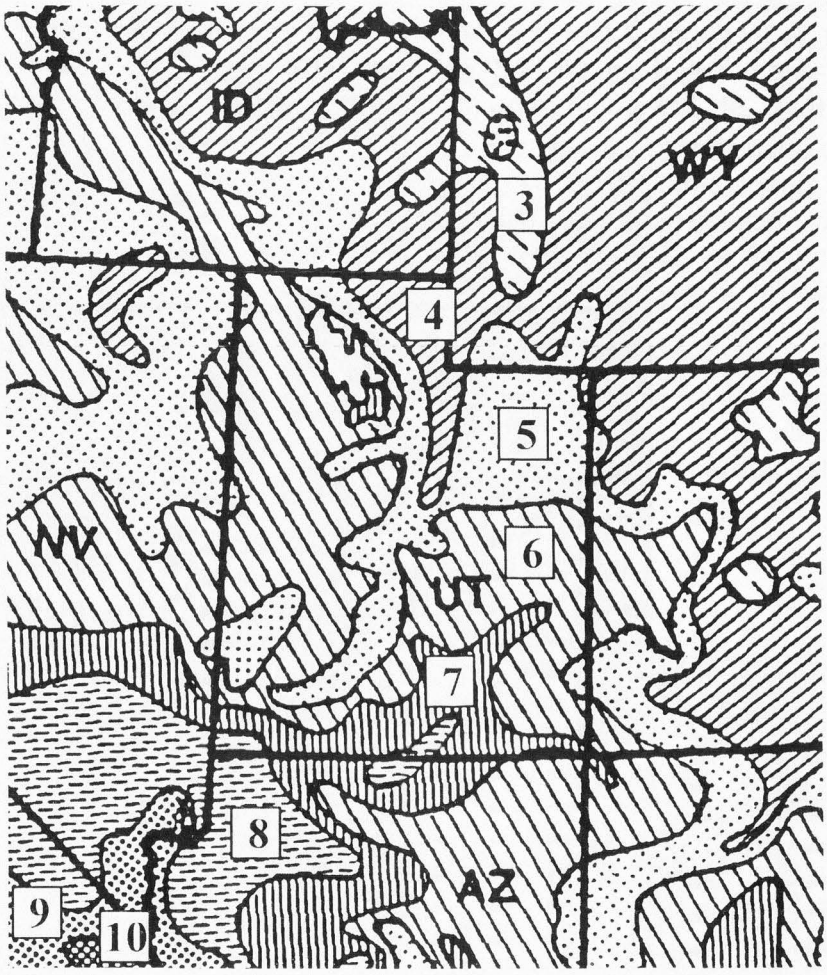
Open Water/Riverine

The open water/riverine cover type is characterized by unvegetated water and includes areas of flowing water as well as ponded water. Typically, open water areas are deeper than 6.5 feet. Ponded water may be less than 2 feet deep, but does not support underwater, floating-leaved, or emergent plants (unlike areas of aquatic bed, wet meadow, or marsh). Examples of this cover type include the Jordan River, shallow ponds, streams, and water in ditches, canals, and streams.





USDA Plant Hardiness Zones

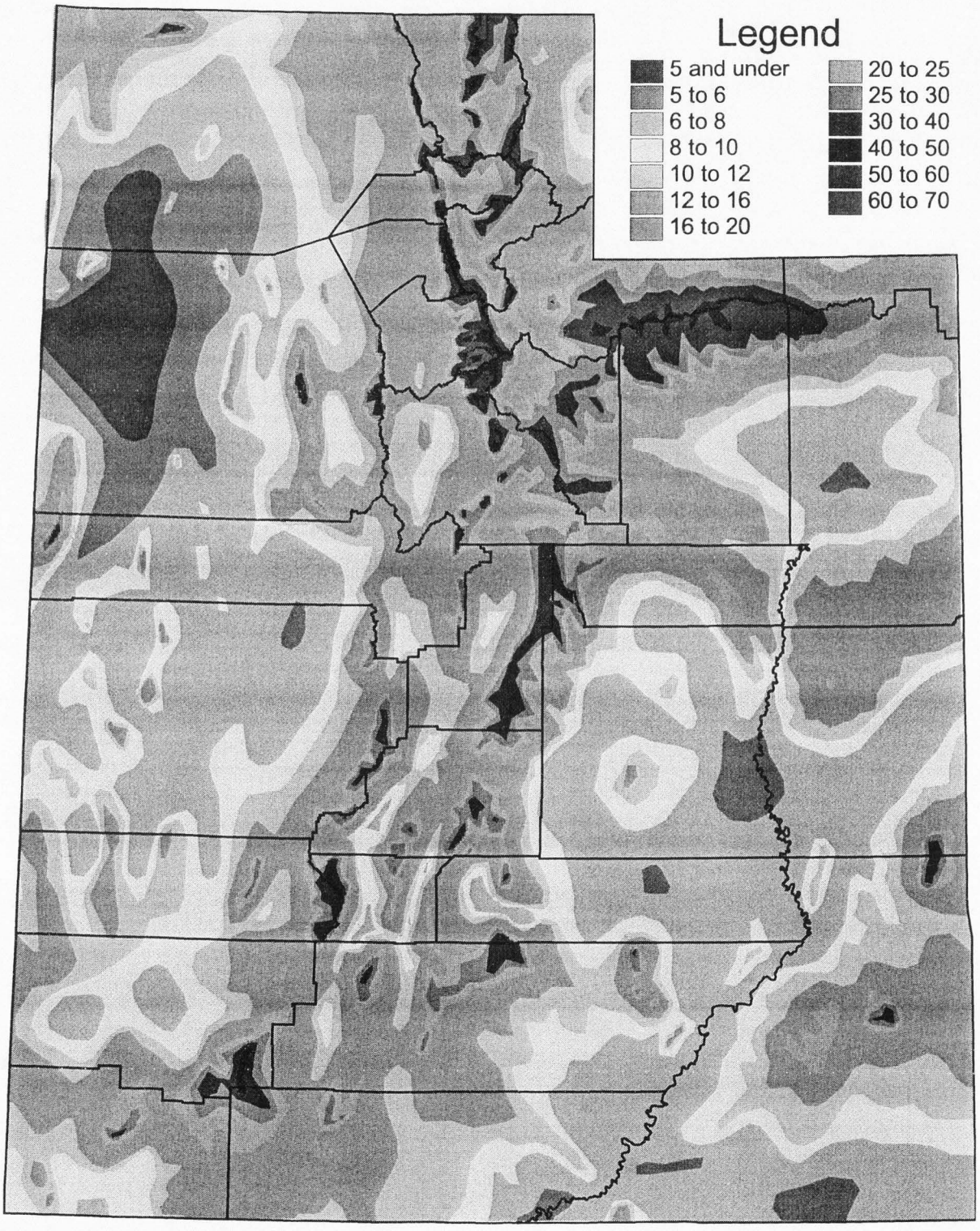


Range of Average Annual Minimum Temperatures for Each Zone

Zone 2	-50 to -40°F	Zone 7	0 to 10°F
Zone 3	-40 to -30°F	Zone 8	10 to 20°F
Zone 4	-30 to -20°F	Zone 9	20 to 30°F
Zone 5	-20 to -10°F	Zone 10	30 to 40°F
Zone 6	-10 to 0°F		

USDA plant hardiness zones are given to indicate a plant's cold-hardiness, but also give some indication of heat tolerance. The contiguous United States and southern Canada have been divided by the USDA into eleven zones that correspond to a 10°F range in average annual minimum temperatures. Utah's hardiness zones range from zone 4 in the northeast to zone 8 in the southwest (See Trees of Utah and the Intermountain West by Michael Kuhns for specific Utah weather station temperature data). Plant species should only be planted beyond their recommended zones on a trial basis.

Utah Precipitation in Inches



Map created by Jared Barnes.

See Appendix B for specific Utah weather station precipitation data (1971-2000).


Center for
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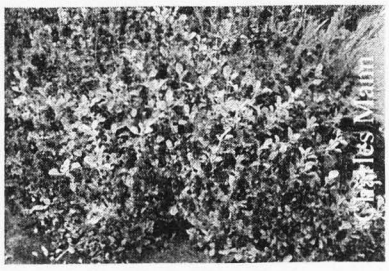
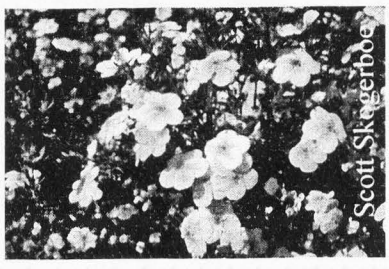
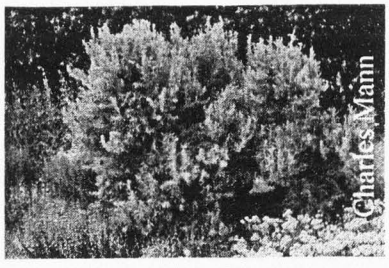
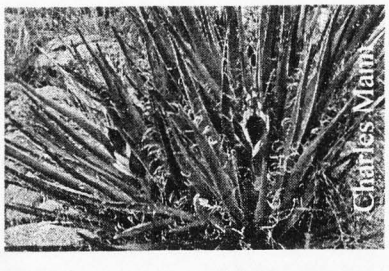
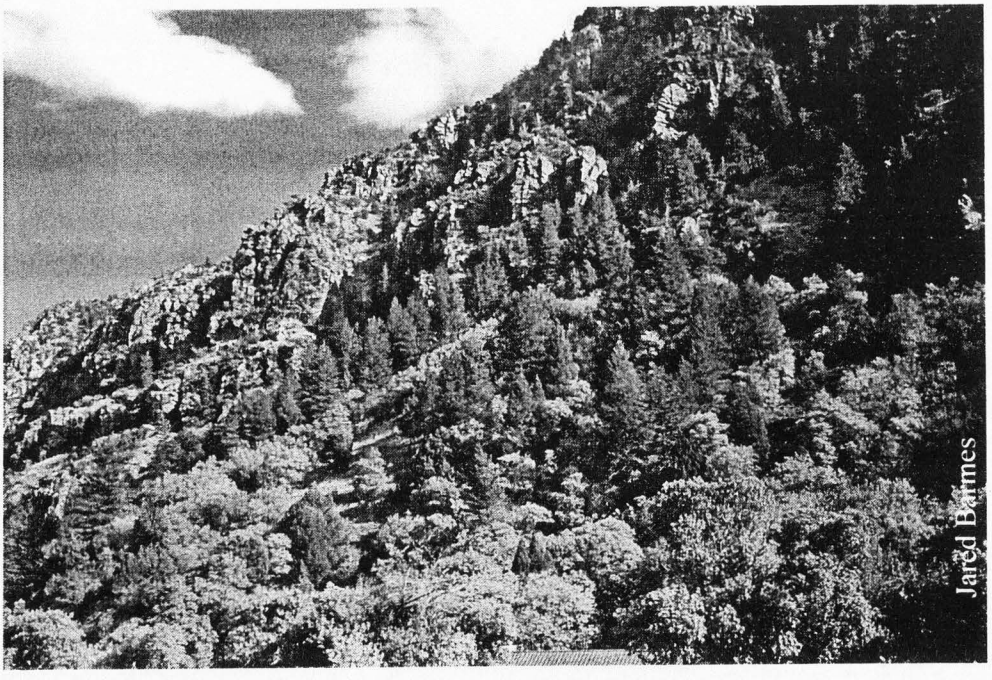








Trees, Shrubs, and Other Woody Plants

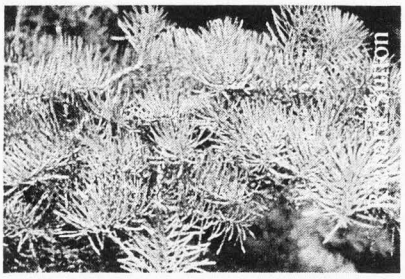


Center for
Water-Efficient
Landscaping

Abies concolor

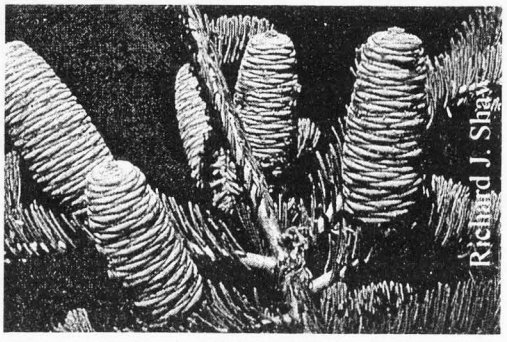
White Fir

Pinaceae-Pine Family



Appearance

SIZE: grows to 100' tall and 20-30' wide
FORM: pyramidal, dense, rounded with age
ROOTS: shallow, spreading, fibrous
LEAVES: acuminate 2½" needles, single, flat, flexible; medium texture, silver green to blue green
FLOWER: inconspicuous red cone
FRUIT: 4" long cone, yellow to purple, born upright on upper branches
BARK: gray in youth, furrowed in age; resin blisters
WINTER: evergreen



Natural Habitat

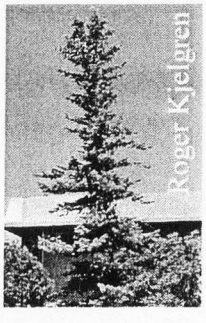
HABITAT AND RANGE: bottoms and benches; WA to MT, south to NM and CA
ELEVATION: 5000-9500'
PLANT ASSOCIATION: subalpine, mid-montane
SOIL: loams, pH 5.5-7.0, deep, well-drained, dry to moist, moderate to high organic matter
EXPOSURE/ASPECT: full to part sun; north to northwest

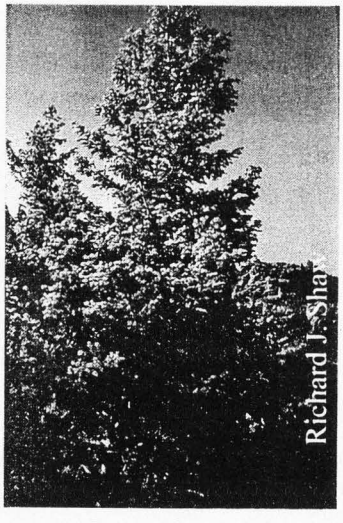
Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium-high (14-27" yr.)
ESTABLISHMENT: needs some protection to do well on windy, exposed sites
GROWTH RATE: rapid in youth, moderate in maturity (12-20' in 20 years)
BEST USE: screen, specimen, formal to informal gardens
WILDLIFE VALUE: food and cover for grouse, squirrels, rodents, and deer
COMPANION PLANTS: see appendix A

Comments

The white fir is a climax species in its native environment and a worthy candidate to replace the blue spruce (*Picea pungens*) as Utah's official state tree. Once established, it performs exceptionally well in harsh city conditions. Its lumber is valuable to the building industry. Available cultivars include: 'Candicans' (long, blue needles; narrow crown), 'Compacta', and 'Violacea' (silver- blue needles). A related species, the subalpine fir (*A. lasiocarpa*) is a slender, spirelike tree which is prevalent above 8,000' in both the Uinta and Wasatch Mountains. It may not do well in hot or dry conditions (zones 1-5).





Acer grandidentatum

Bigtooth Maple

Aceraceae-Maple family

Appearance

SIZE: grows 20-30' tall and 20-25' wide
FORM: small tree, usually multi-stemmed, rounded and spreading with ascending branches
ROOTS: spreading and shallow
LEAVES: 3-5 rounded lobes, 2-5" long and wide; medium to coarse texture, dark green turning to red, yellow, and orange in fall
FLOWER: inconspicuous, light green
FRUIT: 1" samara, reddish tan, u-shaped; summer
BARK: grayish flat-topped ridge on mature bark; plate-like scales
WINTER: reddish gray twigs; dense

Natural Habitat

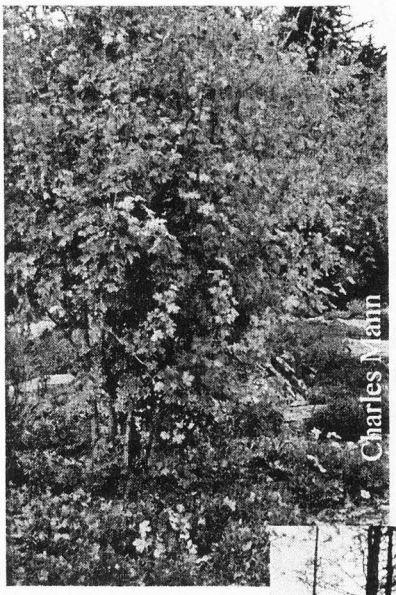
HABITAT AND RANGE: ID to WY, south to NM
ELEVATION: 4500-8500'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: rocky to medium texture, pH 6.0-8.0, deep to shallow, moist to dry, organic matter, well-drained
EXPOSURE/ASPECT: full sun, intermediate shade tolerance; south at higher elevations, all aspects at lower elevations

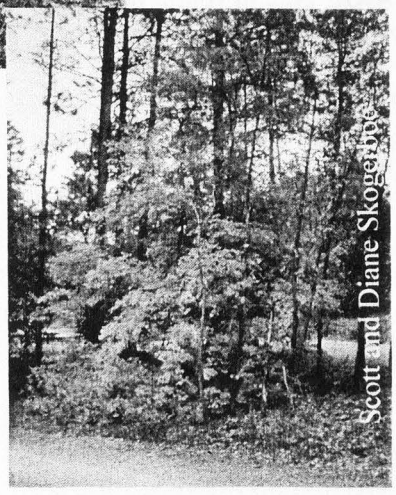
Landscape Use

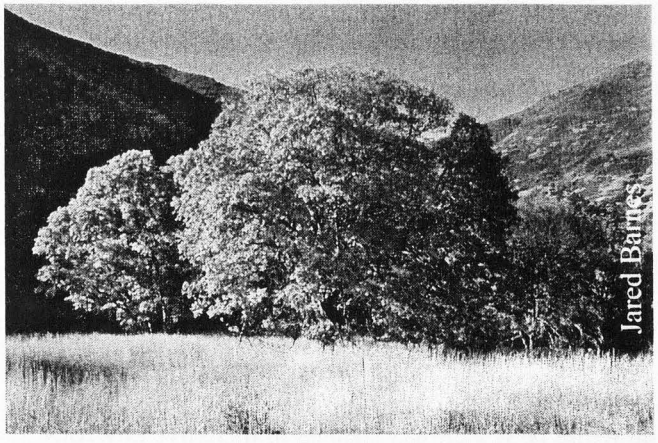
HARDINESS ZONES: 3-6
WATER USE: low to medium (16-22" yr.)
ESTABLISHMENT: weekly deep watering during summer months
GROWTH RATE: slow to moderate, fast if watered
BEST USE: hedge, specimen, shrub mass/screen
WILDLIFE VALUE: good cover, browsed by deer
COMPANION PLANTS: see appendix A

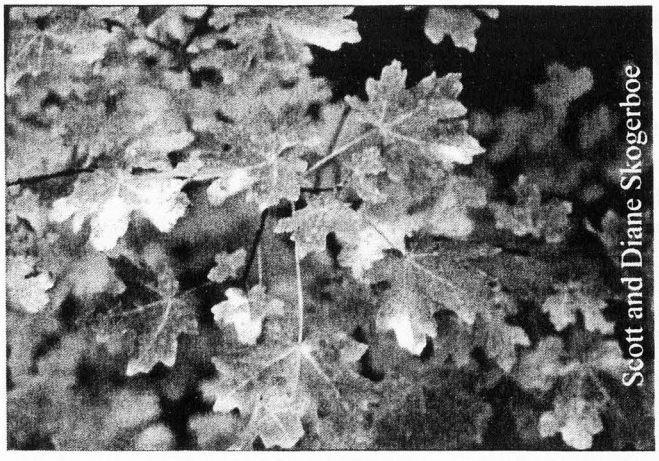
Comments

Bigtooth maple withstands high soil pH better than other maples and its fall color is the best kept secret in the intermountain west. It can be trained as a large shrub (multiple trunks) or as a small tree (single trunk). The cultivar 'Autumn Glow' has an upright tree form and good fall color. Some cultivars have been developed using sugar maple rootstock, which are less cold hardy and not recommended. A related species, the Rocky Mountain maple (*A. glabrum*) is a small, native tree that prefers moist, protected sites along streams. It has yellow fall color.









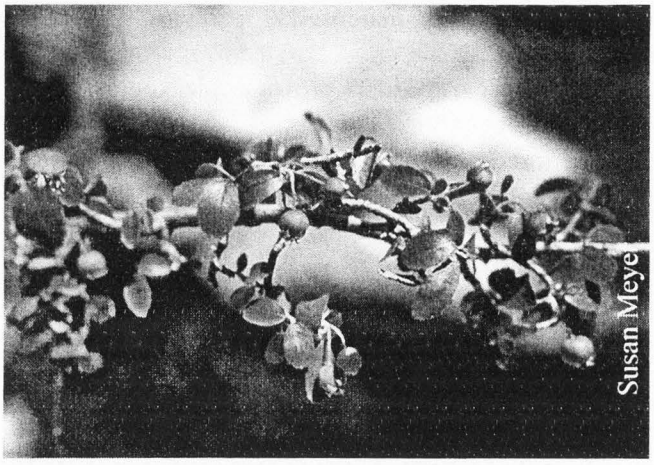
Amelanchier utahensis

Utah Serviceberry

Rosaceae-Rose family

Appearance

SIZE: grows 10-12' tall and 8-10' wide
FORM: low to large shrub; rounded top
ROOTS: deep, spreading, stoloniferous, suckering
LEAVES: 2" long, ovate, rounded or acute tip, hairy surfaces, coarsely serrate margins; medium texture, light turning yellow to reddish in fall
FLOWER: 1" white flowers in racemes; showy, April-June
FRUIT: ½" berrylike pome, purple-black, edible
BARK: grayish, smooth
WINTER: coarse twig pattern

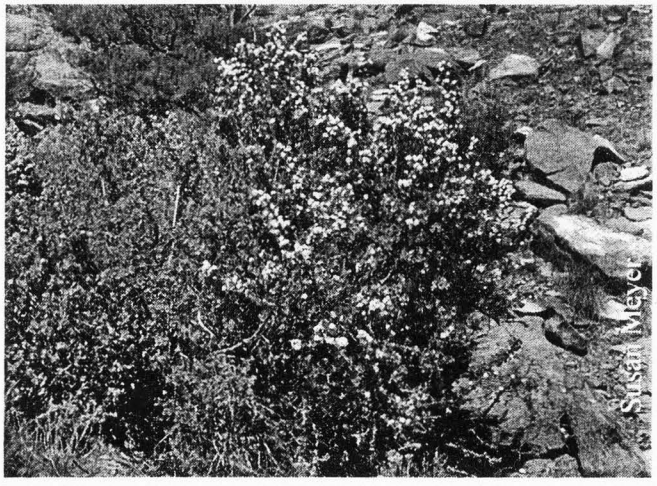


Natural Habitat

HABITAT AND RANGE: hillsides; OR, east to MT, south to CO
ELEVATION: 3000-9000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: coarse to medium texture, pH 6.5-7.5, moderate depth, well-drained, dry, moderate organic matter
EXPOSURE/ASPECT: sun to part shade; south, west, east

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low (8-14" yr.)
ESTABLISHMENT: deep weekly to biweekly watering
GROWTH RATE: slow
BEST USE: ornamental shrub, background mass
WILDLIFE VALUE: most birds, deer
COMPANION PLANTS: see appendix A



Comments

Utah serviceberry offers interest in every season and grows on drier, poorer sites than saskatoon serviceberry (*A. alnifolia*), which is found in protected cool canyon locations. Both are similar in form and habit, and are known to sucker. Saskatoon cultivars include 'Regent' (compact, shrubby) and 'Success' (heavy fruit).

Arctostaphylos patula

Greenleaf Manzanita

Ericaceae-Heath family

Appearance

SIZE: grows 5-6' tall and 8-10' wide
FORM: rounded crown, usually symmetrical, many ascending branches
ROOTS: deep, branching
LEAVES: 1-2", nearly circular, leathery; medium-fine texture, green
FLOWER: small, pink, in dense 1½" panicles; showy, April-June
FRUIT: spherical drupe, dark brown or black, glossy; May-September
BARK: dark red-purple
WINTER: evergreen

Natural Habitat

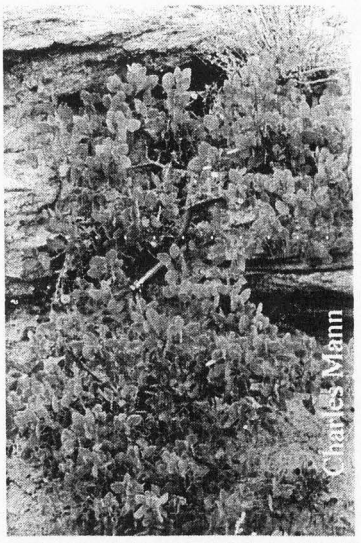
HABITAT AND RANGE: OR to CO, south to CA
ELEVATION: 4500-9500'
PLANT ASSOCIATION: mid-montane, mountain brush
SOIL: coarse texture, pH 5.0-6.0, moderate depth (12-37"+), well-drained
EXPOSURE/ASPECT: sun; flat, south

Landscape Use

HARDINESS ZONES: 2-6
WATER USE: low (< 20" yr.)
ESTABLISHMENT: difficult, needs excellent drainage
GROWTH RATE: slow to moderate
BEST USE: broadleaf evergreen for low hedge or accent
WILDLIFE VALUE: deer, blue grouse
COMPANION PLANTS: see appendix A

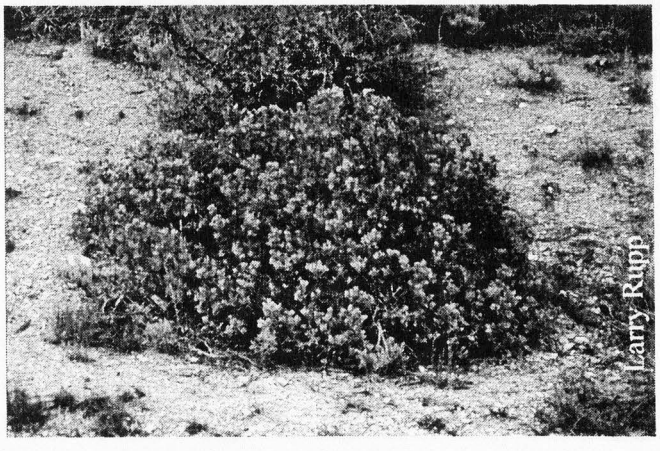
Comments

Greenleaf manzanita is often found as an understory species in Ponderosa pine (*Pinus ponderosa*) communities. It is less hardy in northern Utah and should only be planted in coarse textured soils.


Charles Mann


Susan Meyer


Phil Allen


Larry Rupp

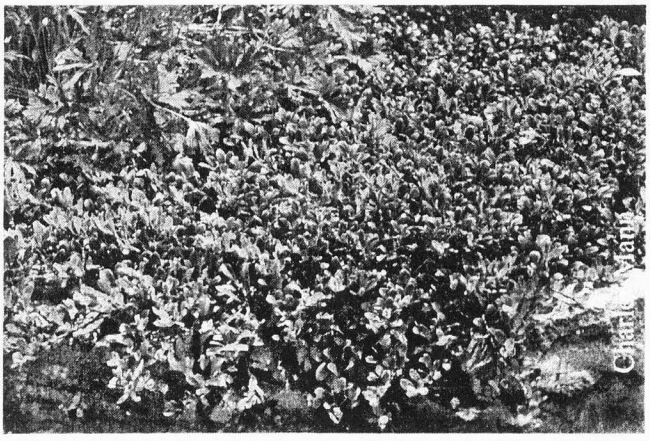
Arctostaphylos uva-ursi

Kinnikinnick, Bearberry

Ericaceae-Heath family

Appearance

SIZE: grows to 6" tall and 5-6' wide
FORM: trailing, prostrate, mat-forming shrub
ROOTS: shallow, fibrous; layers easily
LEAVES: small (½" dia.), leathery; fine texture, dark green above, whitish below; turn red when dead
FLOWER: inconspicuous, pink
FRUIT: ¼" berrylike nutlet; green in summer, bright red in fall, winter
BARK: reddish tan
WINTER: evergreen, reddish; attractive



Natural Habitat

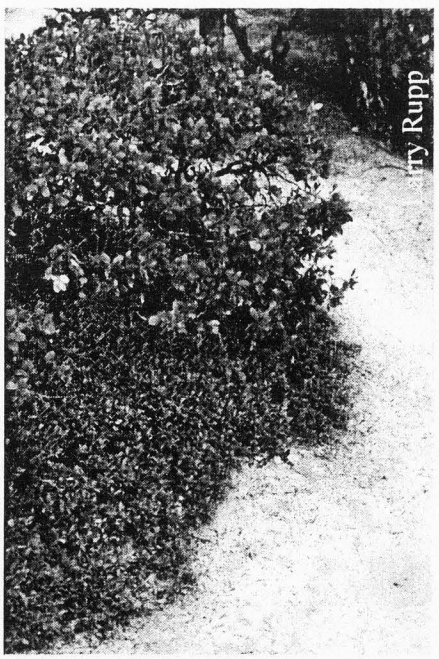
HABITAT AND RANGE: WA, east to MT, south to NM and CA
ELEVATION: 7000-11,500'
PLANT ASSOCIATION: subalpine, mid-montane
SOIL: coarse to rocky (granitic), pH 5.0-6.5, shallow, dry, well-drained, little organic material
EXPOSURE/ASPECT: shade to part shade

Landscape Use

HARDINESS ZONES: 3-7
WATER USE: low (10-14" yr.)
ESTABLISHMENT: good if not over-watered
GROWTH RATE: slow to moderate
BEST USE: ground cover for rocky sites
WILDLIFE VALUE: birds, deer, sheep, bears
COMPANION PLANTS: see appendix A

Comments

Bearberry is one of the few broad-leaf evergreens in Utah and resides in the understory of coniferous forests. It is one of the first plants to grow in burned or disturbed areas. Plant in a protected area so that it doesn't winterburn. There are a few cultivars commercially available including 'Alaska', 'Massachusetts', and 'Point Reyes' (pink flowers, rounder foliage).



Artemisia cana

Silver Sagebrush

Compositae-Sunflower family

Appearance

SIZE: grows to 3½' tall and 2-3' wide
FORM: shrub; erect, round, low
ROOTS: spreading, deep
LEAVES: ½-1" long, narrow, aromatic; fine texture, silvery white
FLOWER: small, yellowish; August-September
FRUIT: ¼" round, whitish capsule; late summer, fall
BARK: silvery white to gray
WINTER: evergreen, attractive

Natural Habitat

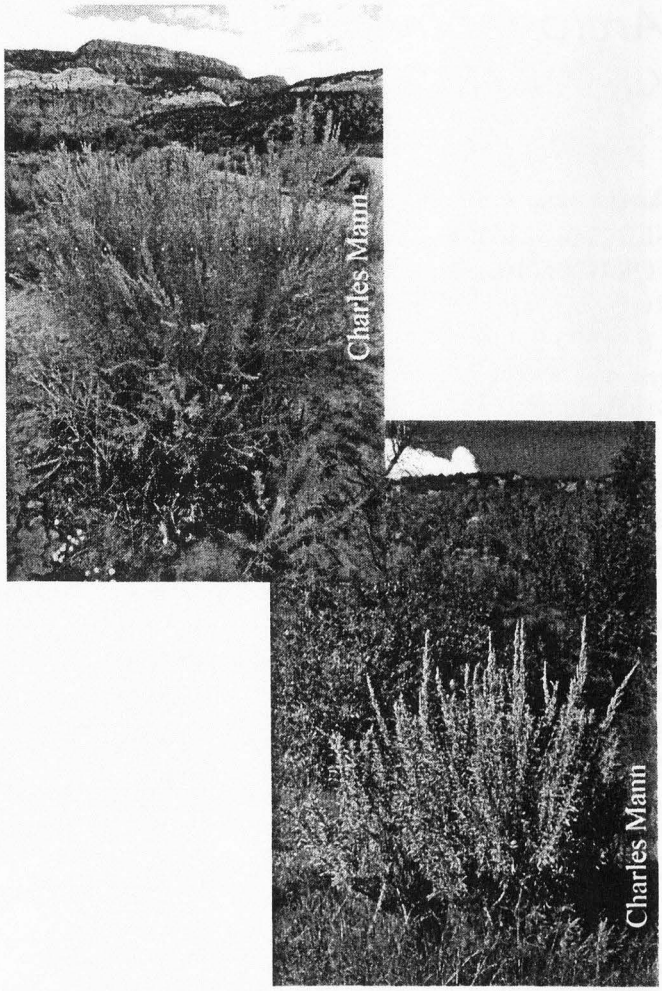
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 7500-10,000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: sandy or coarse, pH 6.5-8.5, well-drained, dry, deep, low organic material
EXPOSURE/ASPECT: sun; north at higher elevations

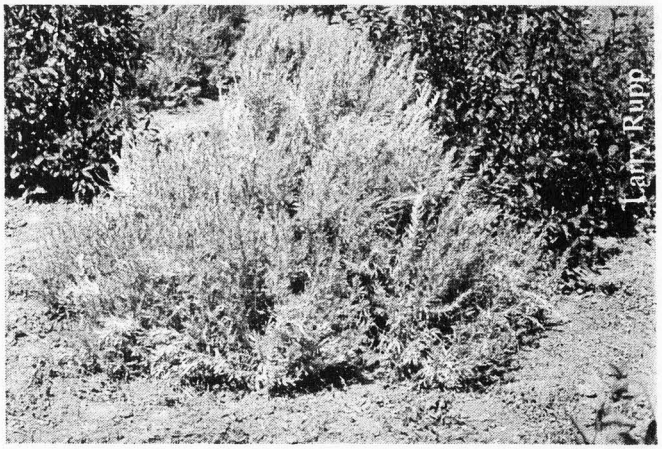
Landscape Use

HARDINESS ZONES: 4-6
WATER USE: xeric to medium (11-20" yr.)
ESTABLISHMENT: use tublings, dibbled into the ground
GROWTH RATE: rapid
BEST USE: border, accents, higher ground cover
WILDLIFE VALUE: deer browse
COMPANION PLANTS: see appendix A

Comments

The soils information above applies to the great plains subspecies of silver sage, cana. The Utah subspecies, viscidula, is similar but grows in wet mountain meadows. Silver sage can withstand heavy deep pruning to renew old growth. It will grow out of size bounds in high water, low elevation gardens. A family member, gray horsebrush (*Tetradymia canescens*) grows to 2' on the foothills and has white hairs on the stems and leaves and yellow flowers which are grouped in fours at the end of its branches.

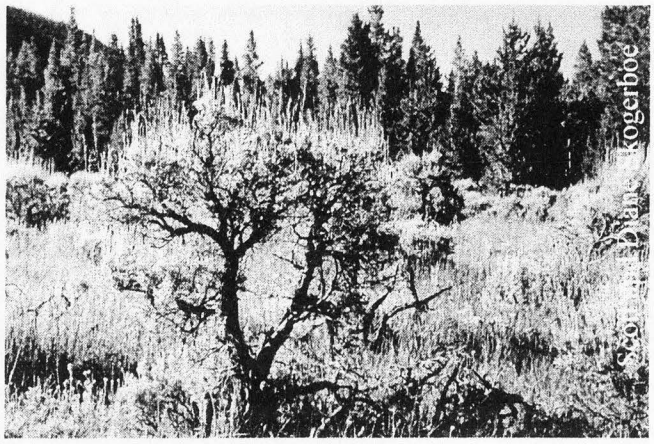




Artemisia tridentata

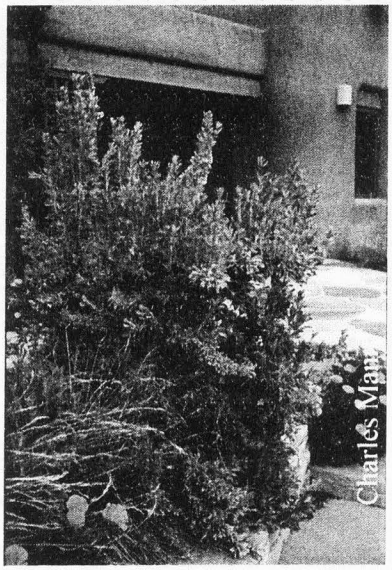
Big Sagebrush

Compositae-Sunflower family



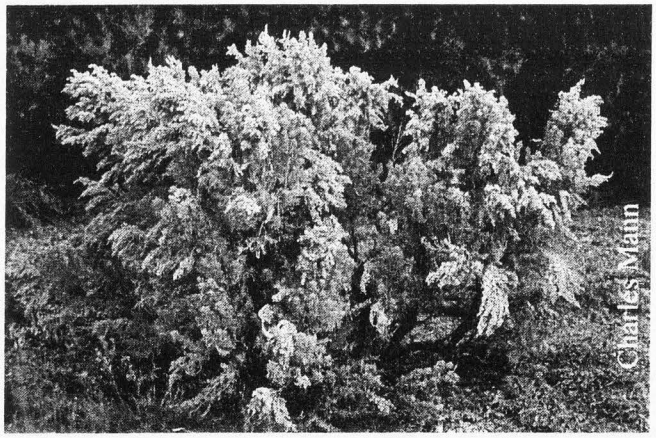
Appearance

SIZE: grows 1-12' tall and 5-8' wide
FORM: much-branched, rounded, compact shrub
ROOTS: deep, spreading
LEAVES: ¾", elongated with 3 lobes at tip, silvery pubescent, aromatic; fine texture, silver- to blue-green
FLOWER: yellow, inconspicuous; July-November
FRUIT: achene; inconspicuous
BARK: twisted, gray brown, scaly
WINTER: evergreen, attractive



Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4000-10,000'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, shrub steppe, mixed desert scrub
SOIL: coarse to fine, pH 6.5-7.5, moderate to deep, dry, well-drained, low to moderate organics
EXPOSURE/ASPECT: sun; all, south at higher elevations



Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low (8-14")
ESTABLISHMENT: use tublings, dibbled into the ground
GROWTH RATE: rapid in youth, slow in maturity
BEST USE: dry, year around ornamental
WILDLIFE VALUE: deer and sage grouse browse
COMPANION PLANTS: see appendix A

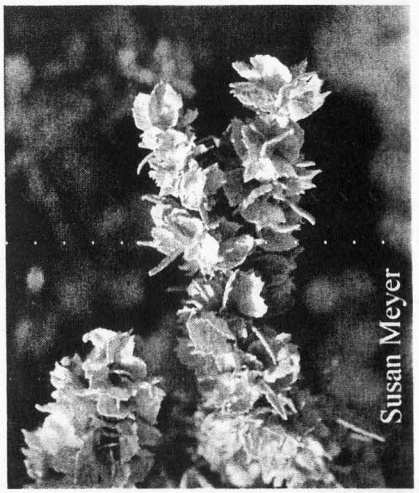
Comments

Big sagebrush is the regionally dominant species in the shrub steppe plant association. Three subspecies of *Artemisia tridentata* occur in Utah. Basin sage (*A. t. tridentata*) can grow big and gangly. Better choices for the landscape are mountain big sage (*A. t. vaseyana*) and Wyoming big sage (*A. t. wyomingensis*) which are smaller, better behaved varieties. All exude a wonderful menthol scent into the air after summer rainstorms. Black sagebrush (*A. nova*) is perhaps the best shrub-like sage for the home landscape. It is similar to big sagebrush, but is smaller (1-2' tall and wide) and greener, growing on rockier, shallower soils.

Atriplex canescens

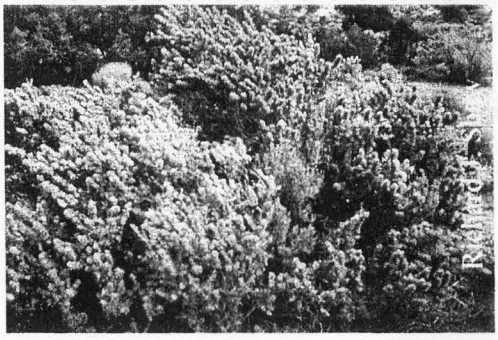
Fourwing Saltbush

Chenopodiaceae-Goosefoot family



Appearance

SIZE: grows to 4' tall and 6' wide
FORM: rounded or procumbent shrub
ROOTS: deep, spreading
LEAVES: 2" narrowly oblong; medium texture, whitish to silvery gray
FLOWER: dioecious, inconspicuous
FRUIT: achene with four-winged bracts, tan, interesting; late summer-fall
BARK: exfoliating; stout twigs
WINTER: evergreen and twiggy, persistent fruit



Natural Habitat

HABITAT AND RANGE: WA to Alberta and SD, south to Mexico and TX
ELEVATION: 3000-7600'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub, salt desert scrub
SOIL: medium to coarse, pH 7.5-8.5, 36-60"+ depth, low organics, well-drained, sandy
EXPOSURE/ASPECT: sun; all, especially south

Landscape Use

HARDINESS ZONES: 2-10
WATER USE: xeric to low (6-10" yr.)
ESTABLISHMENT: water sparingly first season, then do not water

GROWTH RATE: rapid
BEST USE: low hedge or screen, barrier, xeriscape
WILDLIFE VALUE: birds, browse
COMPANION PLANTS: see appendix A

Comments

Fourwing saltbush is extremely tolerant of all conditions and needs little maintenance. Its dried fruits look attractive in flower arrangements. This plant differs from shadscale (*A. confertifolia*) by being bigger, coarser textured, unarmed, less salt tolerant, and having a narrower leaf.

Atriplex confertifolia

Shadscale

Chenopodiaceae-Goosefoot family

Appearance

SIZE: grows to 3' tall and wide
FORM: rounded top, erect ascending branches
ROOTS: deep, wide-spreading
LEAVES: ½" rounded, clumped together; fine texture, silver-green
FLOWER: dioecious; inconspicuous
FRUIT: achene; showy, rose/tan; July-November
BARK: light brown-gray; stout, spiny branches
WINTER: twiggy

Natural Habitat

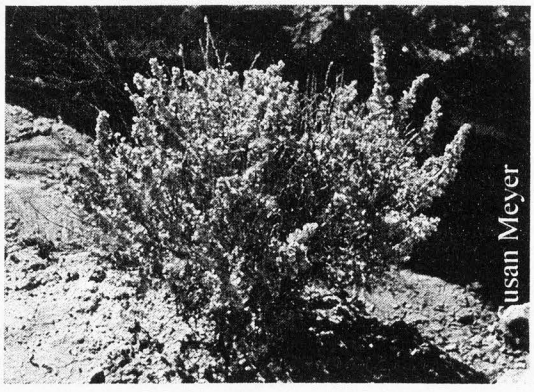
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 2800-7000'
PLANT ASSOCIATION: mid-montane, mixed desert scrub, salt desert scrub
SOIL: gravelly to fine, pH 7.5-9.0, deep to moderate, dry, low organics, well-drained
EXPOSURE/ASPECT: sun; all, especially south

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low (4-10" yr.)
ESTABLISHMENT: water sparingly first season, then do not water
GROWTH RATE: rapid
BEST USE: shrub for alkaline conditions
WILDLIFE VALUE: birds, browse
COMPANION PLANTS: see appendix A

Comments

Shadscale is salt tolerant and forms hybrids with *A. canescens* and *A. gardneri*. Gardner's saltbush is a prostrate shrub with pale gray-green, small, densely scurfy leaves that occurs commonly throughout Utah in fine textured saline substrates. Spiny hopsage (*Grayia spinosa*), is another xeric, salt tolerant family member that grows 1½ to 4 feet tall and would add interest in the cultivated landscape. It has gray striated bark, spiny branchlets, and a winged fruit that resembles commercial hops.



Betula occidentalis

Water Birch

Betulaceae-Birch family

Appearance

SIZE: grows 20-30' tall and 15-20' wide
FORM: shrub or tree; clump-like; spreading, ascending branches; open crown
ROOTS: fibrous, spreading, shallow
LEAVES: 1-2" ovate, sharply pointed and lobed, prominent veins; medium texture, dark green above, light yellow green beneath, turning yellow-orange in fall
FLOWER: 3/4" green catkins; spring
FRUIT: brown cone-like catkins with winged nutlet; matures fall
BARK: smooth, brownish red, thin, with horizontal lenticels; cherry-like
WINTER: pendulous twigs thin, reddish, fine texture, attractive

Natural Habitat

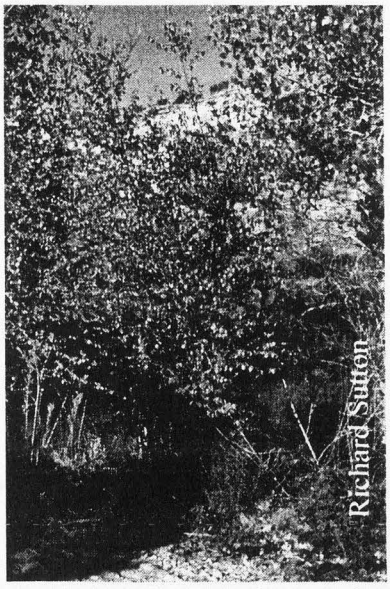
HABITAT AND RANGE: streamsides; WA to MT, south to NM and CA
ELEVATION: 4000-8,800'
PLANT ASSOCIATION: mid-montane, riparian forest, riparian shrub
SOIL: medium textured loam, pH 6.5-7.0, shallow, well-drained, moist to wet, no organics
EXPOSURE/ASPECT: sun to part shade

Landscape Use

HARDINESS ZONES: 2-7
WATER USE: medium to high
ESTABLISHMENT: avoid very hot, dry sites
GROWTH RATE: rapid
BEST USE: specimen, shrub mass
WILDLIFE VALUE: sheep, goats, birds, deer, beaver
COMPANION PLANTS: see appendix A

Comments

Water birch is a nice multi-stemmed tree that does well and has fine winter lines and color values. It is more borer resistant than other birches, can withstand moderately high soil pH, and likes to sucker. A family member, the thinleaf alder (*Alnus incana*) is a shrub or small tree which grows near streams or in other moist places. It has an attractive open habit of growth with ascending limbs and silvery-gray bark (zones 1-7). Another relation of interest, western hophornbeam (*Ostrya knowltonii*) is a small tree that grows at the bases of monoliths, defiles, and in hanging gardens in sandstone areas, but it is unknown in cultivated landscapes.



Ceanothus martini

Utah Mountain Lilac

Rhamnaceae-Buckthorn family

Appearance

SIZE: grows 2-3' tall and 4-5' wide
FORM: low, open and ascending branches
ROOTS: spreading with taproot
LEAVES: ½-1" roundish, thin; fine texture, light green to green
FLOWER: white in 1-3" clusters; May-July
FRUIT: small capsule, inconspicuous; fall
BARK: green stems when young
WINTER: deciduous

Natural Habitat

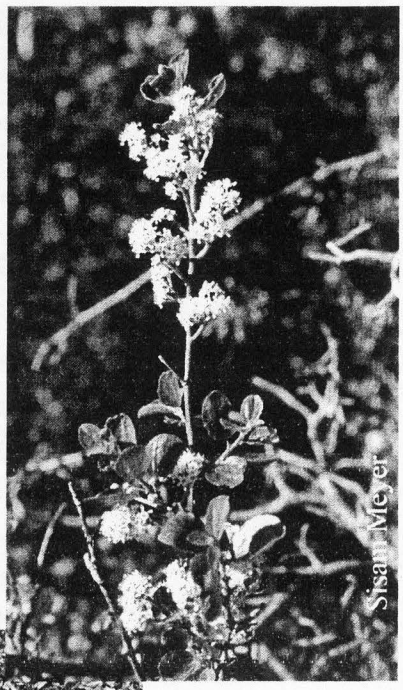
HABITAT AND RANGE: NV, UT, and CO
ELEVATION: 6000-9600'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: medium texture, pH 6.5, deep, dry, low to medium organics, well-drained
EXPOSURE/ASPECT: sun to part sun; all

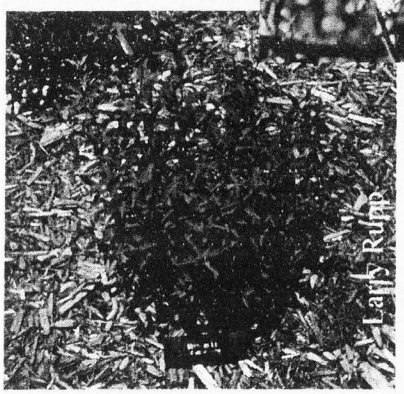
Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium (10-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: rapid
BEST USE: ornamental shrub, formal to informal gardens
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

A related species, deer brush (*C. velutinus*) is a broad-leaved evergreen shrub with a pervasive cinnamon odor that is especially noticeable when one tramples the plant. It is subject to desiccation when exposed above snow in the winter and difficult to establish, but has nice form, foliage, and flower display.





Celtis reticulata

Netleaf Hackberry

Ulmaceae-Elm family

Appearance

SIZE: grows 20-30' tall and 15-20' wide
FORM: large shrub to small tree; rounded
ROOTS: fibrous, wide spreading
LEAVES: 1-3" long, 1-2" wide, leathery, rough, asymmetrical, prominent veins; medium texture, yellow green turning yellow in fall
FLOWER: inconspicuous, green; spring
FRUIT: orange, berry-like drupe; ripen in fall
BARK: red-brown to gray; rough, prominent ridges and furrows, warty
WINTER: leaves are silver-brown and persistent

Natural Habitat

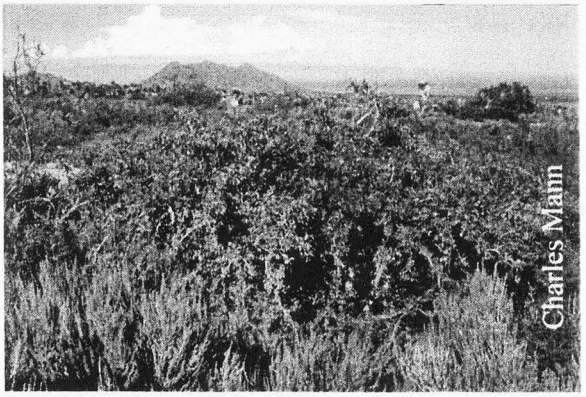
HABITAT AND RANGE: dry foothill or valley sites; WA to ID, south to NM and CA
ELEVATION: 3000-5000'
PLANT ASSOCIATION: mountain brush, shrub steppe, mixed desert scrub
SOIL: gravelly to rocky, pH 7.0-7.5, moderate to deep, dry to moist, organic matter, well-drained
EXPOSURE/ASPECT: sun to part shade; all

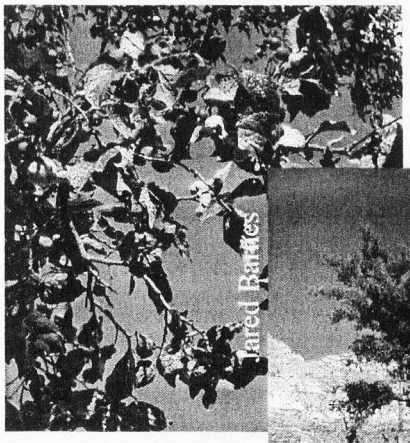
Landscape Use

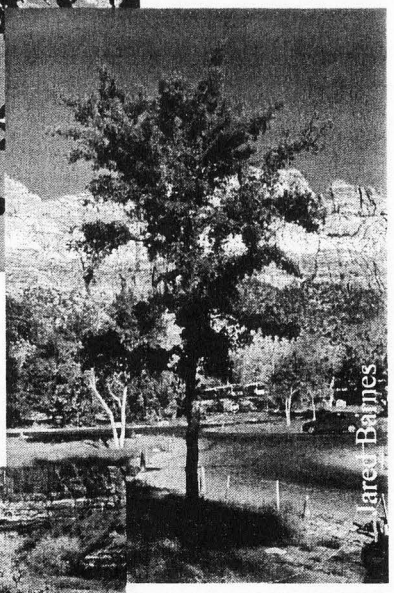
HARDINESS ZONES: 4-9
WATER USE: low to medium (10-16" yr.)
ESTABLISHMENT: regular watering until established
GROWTH RATE: slow to moderate
BEST USE: small shade tree for dry sites, patios, reclamation
WILDLIFE VALUE: food for birds
COMPANION PLANTS: see appendix A

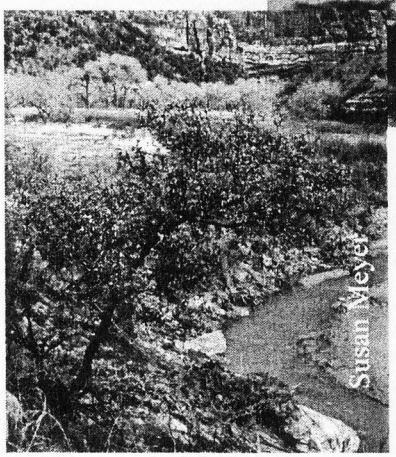
Comments

Netleaf hackberry is a good candidate where little supplemental water will be available and where a large tree is not needed.





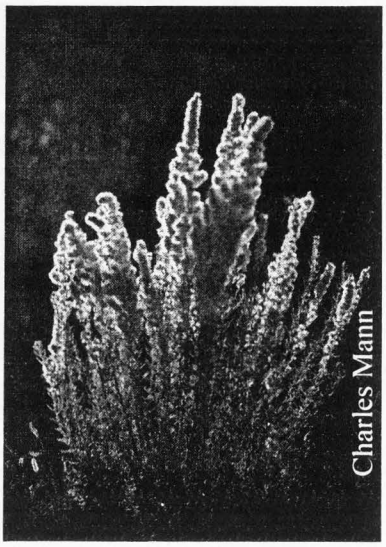




Ceratoides lanata

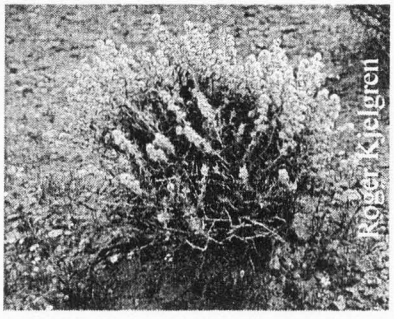
Winterfat

Chenopodiaceae-Goosefoot family



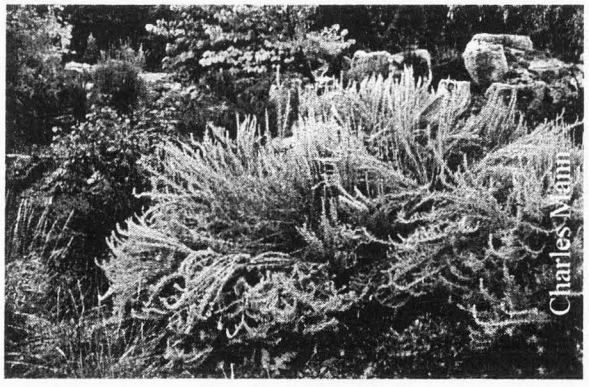
Appearance

SIZE: grows to 2½' tall and wide
FORM: shrub
ROOTS: branching taproot
LEAVES: 2" long, linear, densely hairy, rolled-under margins; white
FLOWER: cottony-looking white clusters
FRUIT: white with hairy bracts; fall
BARK: white and hairy
WINTER: woolly and attractive, evergreen



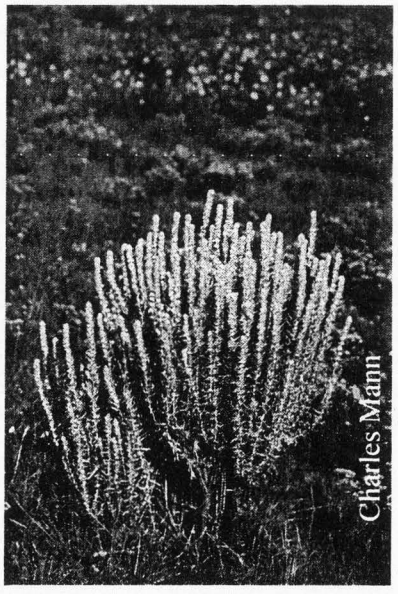
Natural Habitat

HABITAT AND RANGE: hillsides, mesas, plains; Yukon to Saskatchewan, south to CA, NM, and TX
ELEVATION:2400-9300'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub
SOIL: sandy, alkaline, or chalky
EXPOSURE/ASPECT: full sun



Landscape Use

HARDINESS ZONES: 2-7
WATER USE: xeric to low (5-16" yr.)
ESTABLISHMENT: little to no supplemental water
GROWTH RATE: fast
BEST USE: specimen, naturalized areas, foreground to deep greens or background to colors
WILDLIFE VALUE: pronghorn, elk, mule deer, sheep
COMPANION PLANTS: see appendix A



Comments

Winterfat is considered an "ice cream" plant and gets its name from having a high forage value in winter. It disappears from overgrazed range and pasturelands. If winterfat is over-watered in a residential landscape, it becomes spindly. It performs best when left alone. In fall, it brightens the landscape with its luminous, silky white fruit.

Cercocarpus ledifolius

Curl-leaf Mountain Mahogany

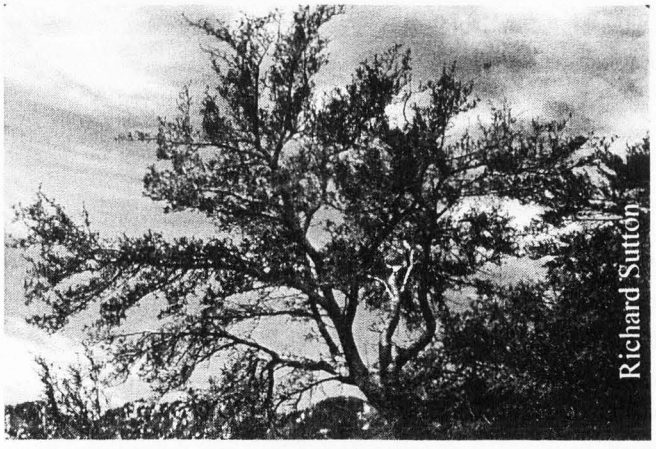
Rosaceae-Rose family

Appearance

SIZE: grows 8-12' tall and wide
FORM: shrub to small tree; sparse, open, irregular
ROOTS: shallow, wide spreading
LEAVES: ½-1" linear, leathery, fragrant, resinous, revolute margins, underside hairy-white; fine texture, green
FLOWER: small, reddish; June-August
FRUIT: achene with 2-3" long, hairy plume; attractive, August-winter
BARK: reddish-brown, furrowed; scaly
WINTER: sparsely evergreen, leaves persist for 2 years; attractive, interesting twig pattern

Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4600-9800'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: coarse to rocky, sandy loam, pH 6.0-7.0, deep to shallow, dry, low organic material, well-drained
EXPOSURE/ASPECT: sun; south at higher elevations, all at lower elevations

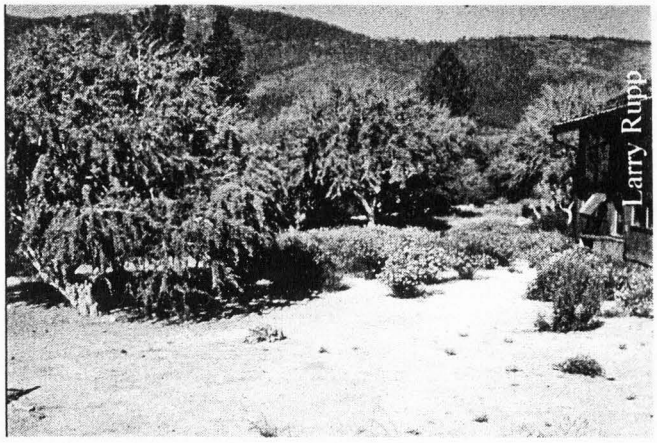


Landscape Use

HARDINESS ZONES: 3-8
WATER USE: xeric to low (10-18" yr.)
ESTABLISHMENT: occasional watering in first season, then only in hot, dry weather
GROWTH RATE: slow
BEST USE: informal ornamental shrub for dry and difficult spots, foundation plant
WILDLIFE VALUE: good deer and elk browse
COMPANION PLANTS: see appendix A

Comments

Curl-leaf mountain mohagany is long-lived, probably needing fire or disturbance to regenerate naturally from seed. Once established, there is no need for supplemental water. It tolerates pruning, even hedging. A related species, dwarf mountain mahogany (*C. intricatus*) grows 3 to 6 feet tall and has similar leaves that only get 2/5 of an inch long.



Cercocarpus montanus

Alder-leaf Mountain Mahogany

Rosaceae-Rose family

Appearance

SIZE: grows 4-6' tall and wide
FORM: sparse, irregular but dense, symmetrical under cultivation
ROOTS: deep, spreading
LEAVES: oval, serrate, round at apex, green above, whitish below; fine texture, green turning brown in fall
FLOWER: small, pink; May-June
FRUIT: white, fuzzy, 2" corkscrews; fall, winter
BARK: gray-brown
WINTER: attractive, interesting plumose

Natural Habitat

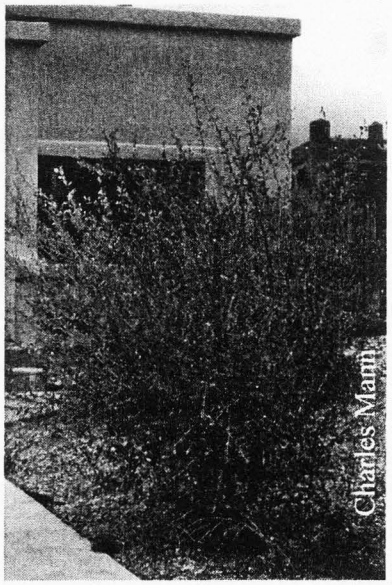
HABITAT AND RANGE: WA to Montana, south to NM and CA
ELEVATION: 4600-9200'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: coarse to rocky, pH 6.5-7.5, deep, dry, well-drained
EXPOSURE/ASPECT: sun; all

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low (10-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: slow
BEST USE: hedge, small shrub, barrier; spring, fall interest
WILDLIFE VALUE: important deer winter-browse
COMPANION PLANTS: see appendix A

Comments

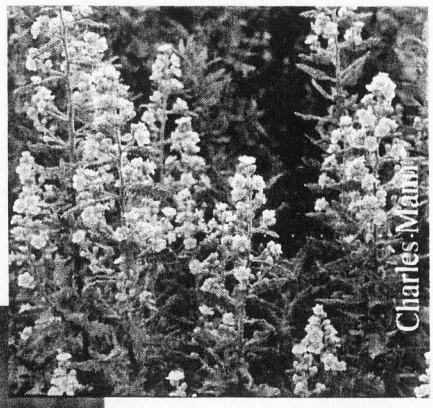
Alder-leaf mountain mohagany has nice form, attractive fruits, and good adaptability. According to its Navajo name, the wood is "as heavy as stone" and furnishes excellent firewood.

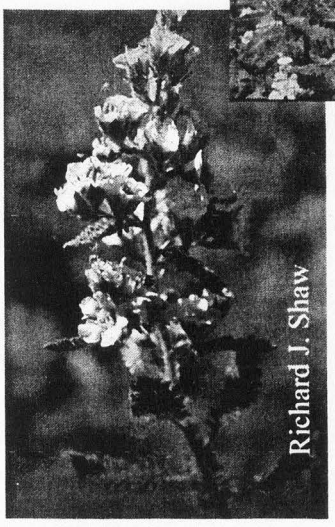


Chamaebatiaria millefolium

Fernbush

Rosaceae-Rose family



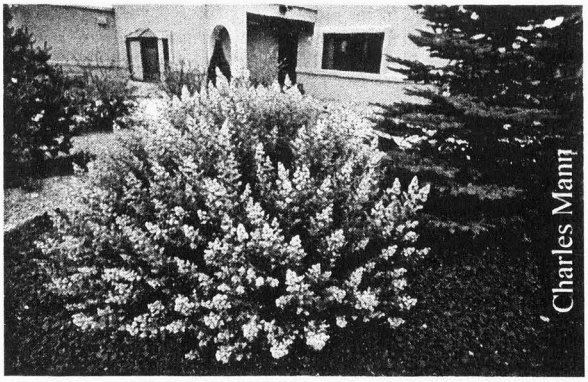


Appearance

SIZE: grows 2½-5' tall
FORM: shrub
ROOTS: branching taproot
LEAVES: very finely divided (fern-like), fuzzy, sticky, aromatic; fine texture, green
FLOWER: ½" white and crinkly, borne in clusters; showy, mid to late summer
FRUIT: inconspicuous
BARK: shreddy and reddish
WINTER: semi-evergreen

Natural Habitat

HABITAT AND RANGE: slopes; OR, ID, WY, and south to CA and AZ
ELEVATION: 4000-7000'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub
SOIL: average to rocky, well-drained
EXPOSURE/ASPECT: sun, part shade



Landscape Use

HARDINESS ZONES: 4-10
WATER USE: low
ESTABLISHMENT: does best in protected areas, requires little supplemental water
GROWTH RATE: moderate
BEST USE: showy specimen, unshorn hedge, screen, mass planting
WILDLIFE VALUE: deer browse, bees and butterflies
COMPANION PLANTS: see appendix A

Comments

The fernbush should be planted where the texture and fragrance can be most enjoyed. It can tolerate very poor soils and heavy pruning.

Chilopsis linearis

Desert Willow

Bignoniaceae-Catalpa family

Appearance

SIZE: grows to 30' tall
FORM: small tree or large shrub
ROOTS: branching taproot
LEAVES: 6-12" long and ½" wide, linear, smooth, entire; green
FLOWER: large and white, streaked with purple; fragrant, May-June
FRUIT: capsule
BARK: brown, glabrous to scaly and somewhat wooly
WINTER: unimpressive

Natural Habitat

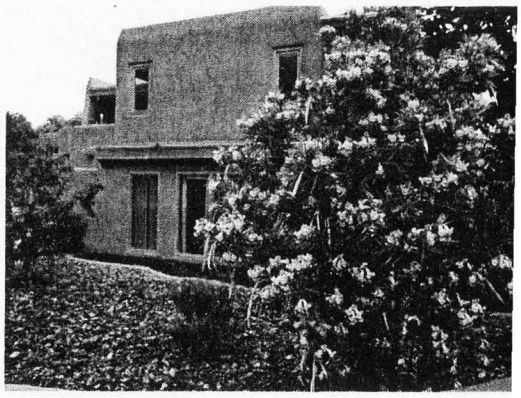
HABITAT AND RANGE: streamside; TX to NV, CA, and Mexico
ELEVATION: below 5000'
PLANT ASSOCIATION: riparian shrub
SOIL: sandy, well-drained
EXPOSURE/ASPECT: sun

Landscape Use

HARDINESS ZONES: 4-9
WATER USE: medium to high
ESTABLISHMENT: water regularly during hot summer months
GROWTH RATE: moderate
BEST USE: showy ornamental
WILDLIFE VALUE: minimal
COMPANION PLANTS: see appendix A

Comments

Desert willow has great horticultural potential and is related to western catalpa (*Catalpa speciosa*) and trumpet vine (*Campsis radicans*). It is susceptible to cold damage in northern Utah and may die back to the ground until roots are established.



Chrysothamnus nauseosus

Rubber Rabbitbrush

Compositae-Sunflower family

Appearance

SIZE: grows 4-6' tall and wide
FORM: shrub with rounded head; dense and erect
ROOTS: deep and spreading
LEAVES: 1" long, narrow, pubescent; aromatic; fine texture, gray or white
FLOWER: yellow to golden in narrow heads; attractive; late summer
FRUIT: plumose white achenes; winter-fall
BARK: green and glabrous to white and felty
WINTER: semi-deciduous, gray-green; interesting fruit

Natural Habitat

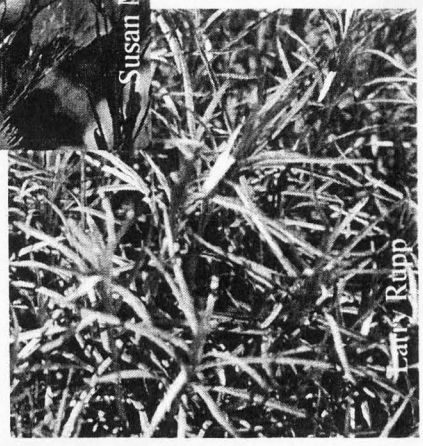
HABITAT AND RANGE: WA, southeast to NV and CO
ELEVATION: 4300-8100'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub, salt desert scrub
SOIL: clay loam to sandy loam, pH 7.0-8.5, moderate depth (40-60"+), dry, well-drained
EXPOSURE/ASPECT: sun; all

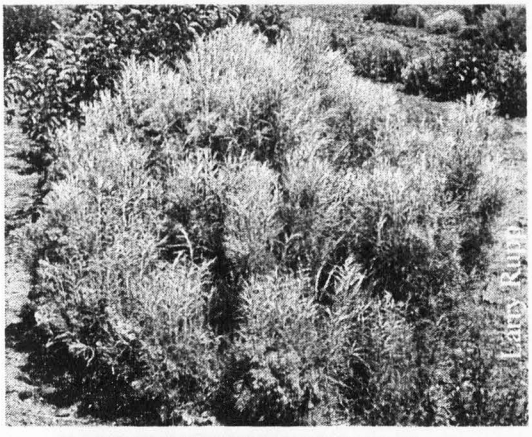
Landscape Use

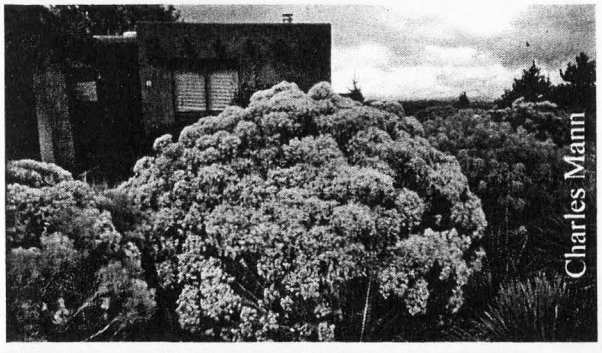
HARDINESS ZONES: 3-6
WATER USE: xeric to low (6-12" yr.)
ESTABLISHMENT: volunteers freely from seed or transplants easily; no watering
GROWTH RATE: rapid
BEST USE: dry areas, late summer-fall flower color, accent
WILDLIFE VALUE: deer, sheep
COMPANION PLANTS: see appendix A

Comments

Rubber rabbitbrush grows on disturbed areas, contains rubber, and tolerates alkaline soils. Pruning this plant back to a few inches in early spring (late Feb/early March) lends to best shape. With 28 named subspecies, there is tremendous variation within the species. The widely distributed white-stemmed forms like ssp. *albicaulis* and *gnaphaloides* are distinguished by land managers from the widely distributed green stemmed forms like *glabratus* and *consimilis*, which tend to be less palatable to livestock. Sheep as well as deer eat whitestem rubber rabbitbrush. The related and similar looking species, viscid rabbitbrush (*C. viscidiflorus*) has sticky leaves, while Parry's rabbitbrush (*C. parryi*) has a dense, compact shape.







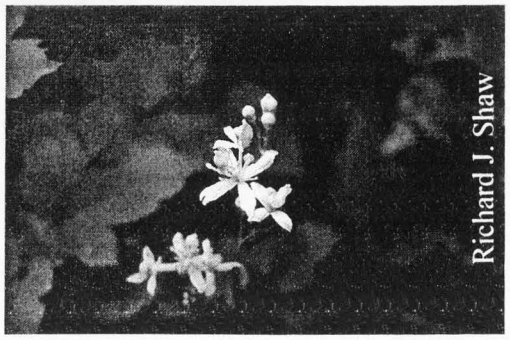
Clematis ligusticifolia

White Virgins-bower

Ranunculaceae-Buttercup Family

Appearance

SIZE: grows 12-18' tall and wide
FORM: climbing vine
ROOTS: shallow, vigorous
LEAVES: 5-7 pinnate leaflets, ovate, toothed, clasping; medium texture, green to light green
FLOWER: 2-3", white
FRUIT: white, pubescent achenes; fall-winter, attractive
BARK: thin, exfoliating
WINTER: massed stems

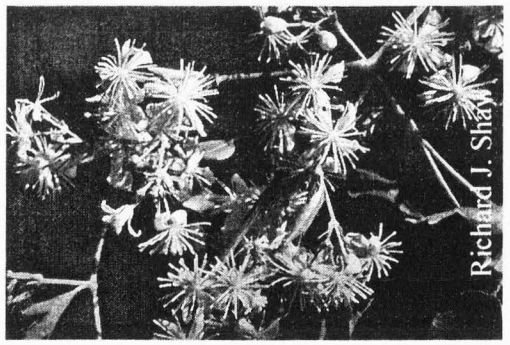


Natural Habitat

HABITAT AND RANGE: stream banks; British Columbia to ND, south to CA, AZ, and NM
ELEVATION: 3600-7600'
PLANT ASSOCIATION: riparian shrub, riparian forest
SOIL: rocky loam, pH 7.0, shallow to deep, well-drained, moist, organic matter
EXPOSURE/ASPECT: sun, part shade

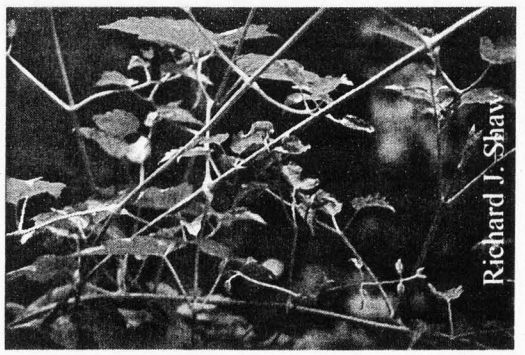
Landscape Use

HARDINESS ZONES: 3-7
WATER USE: low to medium-high (10-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: rapid (15-20' in a season)
BEST USE: climbing vine
WILDLIFE VALUE: birds, deer
COMPANION PLANTS: see appendix A



Comments

White virgins-bower adorns willows, cottonwoods, and other trees and shrubs in riparian communities throughout Utah, but it is curiously absent from the central Wasatch Front. Be sure to train its growth and plant it where you want it to climb.



Cornus sericea

Red-osier Dogwood

Cornaceae-Dogwood family

Appearance

SIZE: grows 6-8' tall and wide
FORM: shrub in clumps, spreading
ROOTS: stoloniferous, spreading, layers
LEAVES: 3" long, distinct venation, pubescent underneath; medium texture, green turning reddish in fall
FLOWER: small, white in flat-top cyme, 2-3" across, attractive; spring-summer
FRUIT: small, berrylike drupe in clusters, white, attractive; fall-winter
BARK: bright reddish purple
WINTER: very attractive bark

Natural Habitat

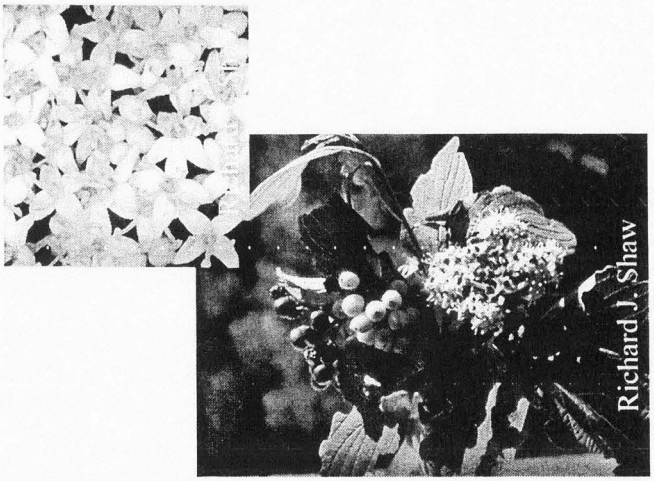
HABITAT AND RANGE: streamsides; WA to MT, south to NM and CA
ELEVATION: 4500-10,000'
PLANT ASSOCIATION: riparian forest, riparian shrub
SOIL: medium to coarse, moist to wet, pH 6.5-8.0, moderate depth, good drainage
EXPOSURE/ASPECT: sun and shade

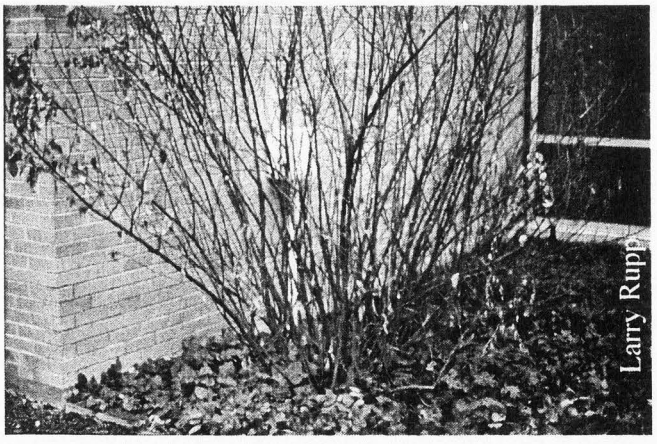
Landscape Use

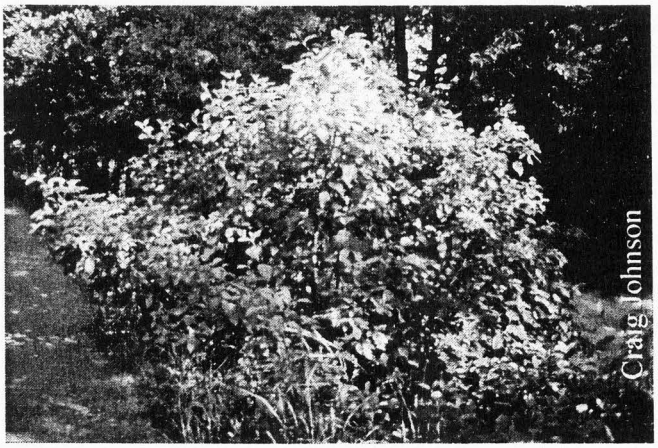
HARDINESS ZONES: 3-6
WATER USE: low to high (18+" yr.)
ESTABLISHMENT: good with irrigation
GROWTH RATE: rapid
BEST USE: specimen, mass shrub, something going at all seasons
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

Red-osier dogwood can withstand waterlogged soils for short periods. Stolons may need to be controlled and twig canker sometimes develops. Available cultivars include: 'Cardinal' (bright red stems), 'Flaviramea' (yellow stems), 'Isanti' (bright red stems; compact), and 'Kelseyi' (compact).



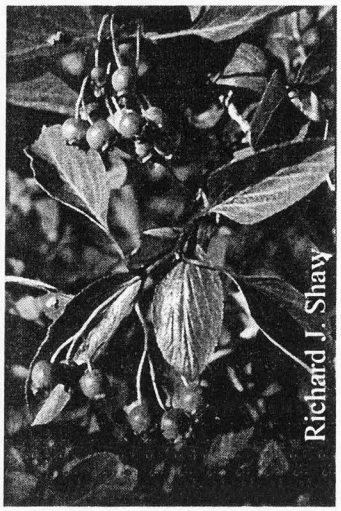




Crataegus douglasii

Douglas Hawthorn

Rosaceae-Rose family



Appearance

SIZE: grows 10-12' tall and to 10' wide
FORM: shrub to small tree; forms thickets, compact round top
ROOTS: deep taproot
LEAVES: 1-3" long, oblong to ovate, doubly serrate, pubescent, thick; medium texture, shiny green turning brown in fall
FLOWER: ½-1" white blossoms, fragrant, attractive; April-May
FRUIT: purple-black pome, edible; fall
BARK: smooth, reddish brown, thorns on branches; dark gray, scaly or slightly furrowed
WINTER: reddish bronze

Natural Habitat

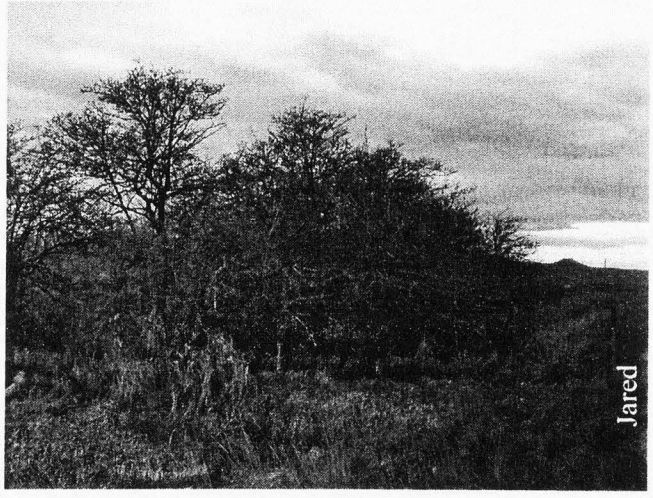
HABITAT AND RANGE: streamsides, terraces, flood plains, alluvial fans, canal banks; WA to MT, south to NM and CA
ELEVATION: 4500-7000'
PLANT ASSOCIATION: riparian forest, riparian shrub
SOIL: rocky to silty clay loam, pH 7.0, deep, moist, organic, well-drained
EXPOSURE/ASPECT: sun

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: medium to high
ESTABLISHMENT: good with irrigation
GROWTH RATE: moderate to slow
BEST USE: barrier, naturalized landscapes, wildlife plantings
WILDLIFE VALUE: birds, cover and food
COMPANION PLANTS: see appendix A

Comments

The river hawthorn (*C. d.* var. *rivularis*) is similar to Douglas hawthorn, but has thinner, longer, serrate leaves. It is also more tree-like with less thorns.



Ephedra viridis

Green Ephedra, Mormon Tea

Ephedraceae-Ephedra family

Appearance

SIZE: grows 2-4' tall and wide
FORM: shrub, spreading to erect
ROOTS: branching taproot
LEAVES: short and deciduous, inconspicuous
FLOWER: inconspicuous
FRUIT: inconspicuous cones
BARK: bright green, finely furrowed, jointed stems, in upside-down broom-like clusters
WINTER: broom-like

Natural Habitat

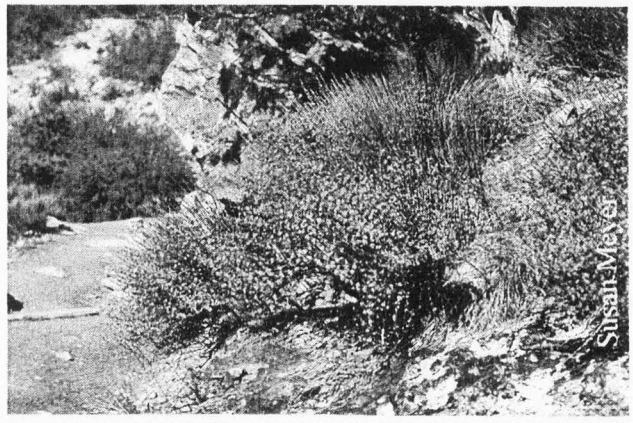
HABITAT AND RANGE: WY, CO, AZ, NV, OR, CA, UT
ELEVATION: 3000-7500'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub, salt desert scrub
SOIL: sandy or gravelly
EXPOSURE/ASPECT: full sun; all

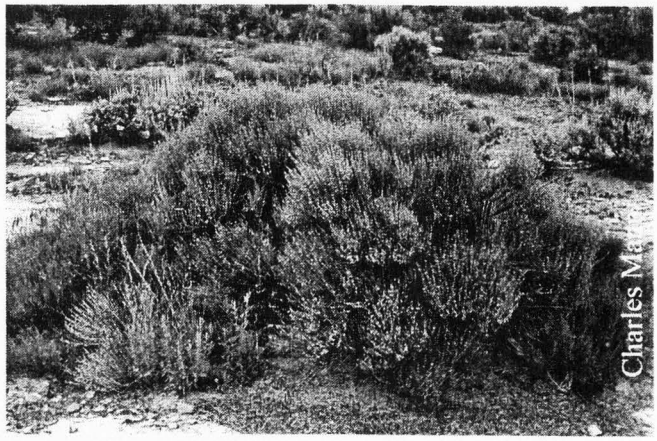
Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low (6-14" yr.)
ESTABLISHMENT: easy if not over-watered
GROWTH RATE: slow
BEST USE: interesting accent plant
WILDLIFE VALUE: minimal
COMPANION PLANTS: see appendix A

Comments

It is reported that the jointed stems of green ephedra were steeped by Mormon pioneers to make a medicinal tea.





Eriogonum corymbosum

Corymb Buckwheat, Lacy Buckwheatbrush

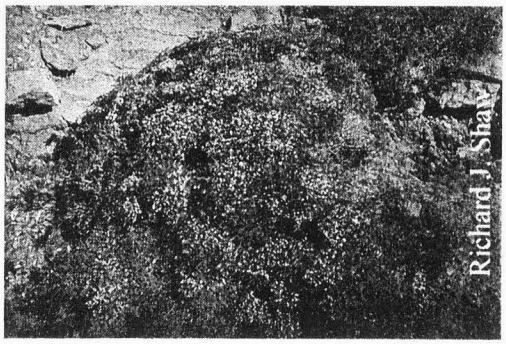
Polygonaceae-Buckwheat family

Appearance

SIZE: grows 2-4' tall
FORM: low to tall shrub or subshrub, clump-forming
ROOTS: branching taproot
LEAVES: 3½" long, elliptic, glabrous or hairy, variable; gray
FLOWER: white, suffused with pink, red, or yellow; in cymes
FRUIT: inconspicuous
BARK: whitish, shreddy; thin
WINTER: persistent, intricately branched, reddish inflorescences; attractive

Natural Habitat

HABITAT AND RANGE: CO, UT, AZ
ELEVATION: 4500-8000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub, salt desert scrub
SOIL: well-drained
EXPOSURE/ASPECT: sun; all

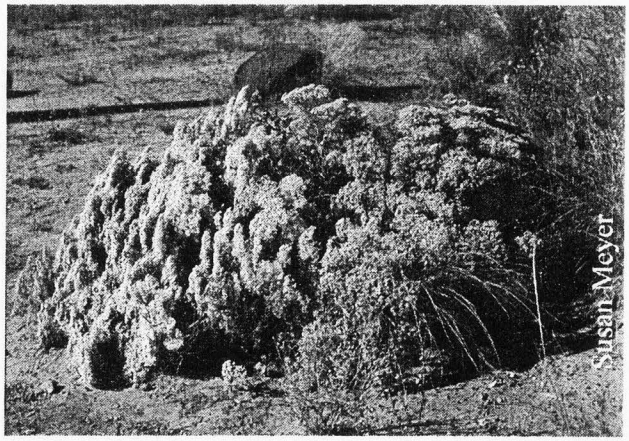


Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low
ESTABLISHMENT: easy, if not overwatered
GROWTH RATE: moderate
BEST USE: accent plant
WILDLIFE VALUE: minimal
COMPANION PLANTS: see appendix A

Comments

The genus *Eriogonum* includes a great group of drought tolerant plants, most of which are perennial, herbaceous plants.



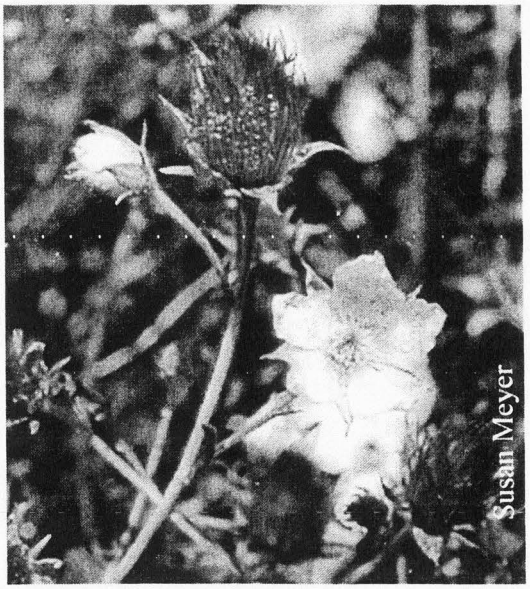
Fallugia paradoxa

Apache Plume

Rosaceae-Rose family

Appearance

SIZE: grows to 5' tall
FORM: shrub
ROOTS: branching taproot
LEAVES: 3-5 lobed, ½" long; fine texture, green above, rusty below
FLOWER: white, solitary; June to August
FRUIT: clusters of feathery tails
BARK: whitish, scaly or shreddy
WINTER: finely branched and twiggy



Natural Habitat

HABITAT AND RANGE: dry rocky slopes and washes; NV and CA, east to TX, and south to Mexico
ELEVATION: 3500-8000'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub
SOIL: rocky or gravelly
EXPOSURE/ASPECT: sun

Landscape Use

HARDINESS ZONES: 3-10
WATER USE: xeric to medium (8-19" yr.)
ESTABLISHMENT: needs little to no supplemental water
GROWTH RATE: fast
BEST USE: hedge, specimen, dry spots, highway planting
WILDLIFE VALUE: deer browse, cover for small mammals and birds
COMPANION PLANTS: see appendix A

Comments

Apache plume tolerates heavy pruning and can be mowed back to within inches of the ground in early spring/late winter. This produces a better behaved specimen. It has the ability to thrive in extreme drought and will add color and interest to the garden all summer.

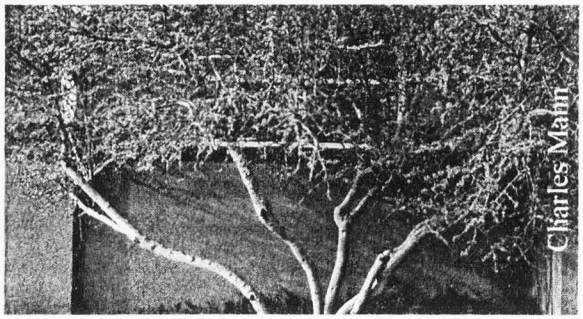
Forestiera neomexicana

New Mexico Privet, Desert Olive

Oleaceae-Olive family

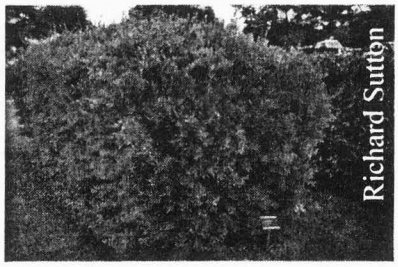
Appearance

SIZE: grows 3-10' tall
FORM: shrub to small tree, erect and spreading
ROOTS: branching taproot
LEAVES: elliptic to oval, thick and leathery; grayish green
FLOWER: inconspicuous
FRUIT: small, bluish black, olive shaped drupe; summer-fall
BARK: smooth and gray
WINTER: attractive bark and branching pattern; densely twiggy



Natural Habitat

HABITAT AND RANGE: riparian terraces, river valleys and cliff bases; CA, east to OK and TX, south to Mexico
ELEVATION: 3000-7000'
PLANT ASSOCIATION: riparian shrub
SOIL: sandy
EXPOSURE/ASPECT: full sun

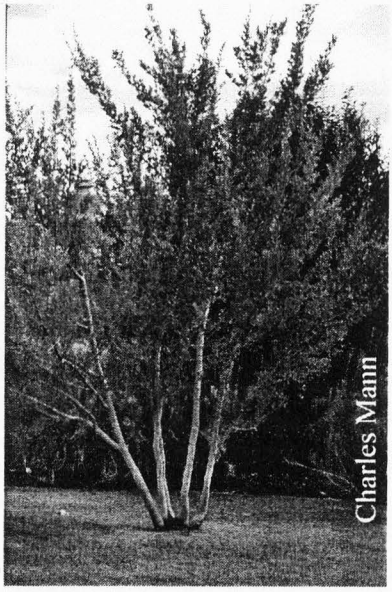


Landscape Use

HARDINESS ZONES: 5-9
WATER USE: xeric to low (9-18" yr.)
ESTABLISHMENT: use irrigation first season, adaptable to higher moisture levels
GROWTH RATE: moderate
BEST USE: informal or sheared hedge, small tree, screen
WILDLIFE VALUE: small mammals, rodents, birds
COMPANION PLANTS: see appendix A

Comments

Desert olive is a species of southern deserts, commonly found on stream banks or in areas where ground water is rather near the surface. It shears well to form a windbreak or hedge, or can be pruned as a small airy specimen tree. It is pest and disease resistant.



Fraxinus anomala

Single-leaf Ash

Oleaceae-Olive family

Appearance

SIZE: grows 8-12' tall
FORM: large shrub or small tree, usually multi-stemmed
ROOTS: branching taproot
LEAVES: ovate and thickish, ½-2½" long and wide; dark green above, paler below
FLOWER: inconspicuous
FRUIT: pale green, winged samara, ½" long and ¼" wide
BARK: 4-angled branchlets, orange at first turning ashy gray
WINTER: rather spindly and coarsly branched

Natural Habitat

HABITAT AND RANGE: canyons, hillsides, and streamsides; sw. CO, nw. NM, n. AZ, s. UT
ELEVATION: 2000-6000'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub
SOIL: well-drained, rocky
EXPOSURE/ASPECT: full sun

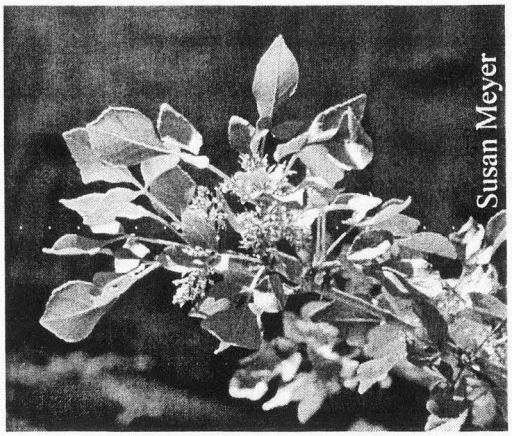
Landscape Use

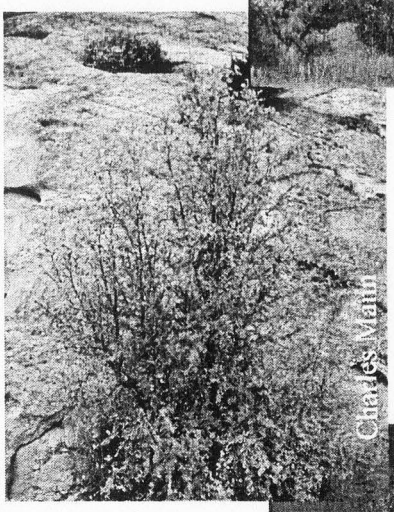
HARDINESS ZONES: 6-9
WATER USE: low
ESTABLISHMENT: moderate watering

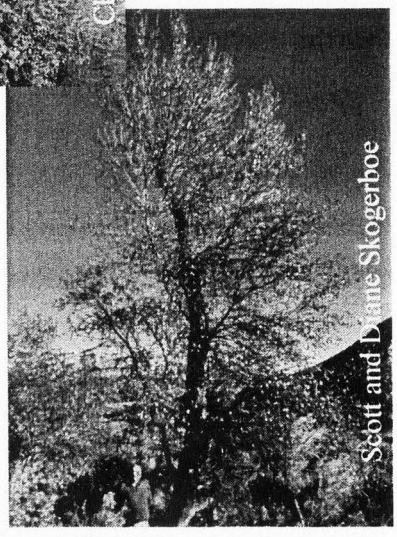
GROWTH RATE: slow
BEST USE: small patio tree or screen
WILDLIFE VALUE: birds and other animals eat seeds, deer browse foliage
COMPANION PLANTS: see appendix A

Comments

Single-leaf ash is tolerant of drought, heat, and high soil pH. It can be pruned to a tree form when young and propagated by bud t-graft on to green ash (*F. pennsylvanica*) rootstock.



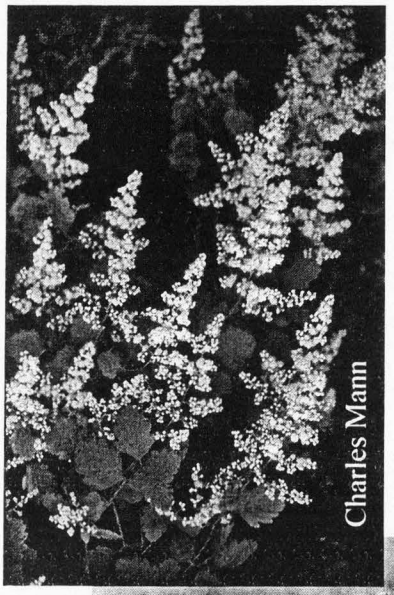




Holodiscus dumosus

Mountain Spray

Rosaceae-Rose family



Appearance

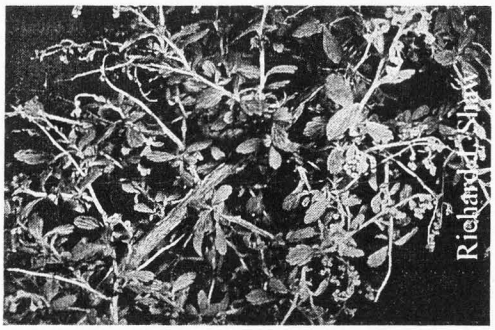
SIZE: grows 3-12' tall and 5-10' wide
FORM: compact, branching from base; spreading
ROOTS: fibrous, spreading
LEAVES: 1" elliptic, some pubescence, 3-6 lobed; medium-fine texture, green turning brown in autumn
FLOWER: small, pinkish white in branch-tip masses; June-August
FRUIT: inconspicuous as individuals, in mass conspicuous, showy; summer-winter
BARK: older twigs dark red, later gray, exfoliating
WINTER: conspicuous fruit

Natural Habitat

HABITAT AND RANGE: riverbottoms and hillsides; WY and UT, south to NM and AZ
ELEVATION: 4200-11,650'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, shrub steppe, mixed desert scrub
SOIL: medium texture, pH 7.0-8.0, deep, dry, well-drained
EXPOSURE/ASPECT: sun; all, south at higher elevations

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low
ESTABLISHMENT: moderate watering
GROWTH RATE: slow
BEST USE: ornamental shrub in masses
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A



Comments

Mountain spray is often found in large clumps. Native Americans once used its small dried berries for food.

Jamesia americana

Waxflower, Cliff Jamesia

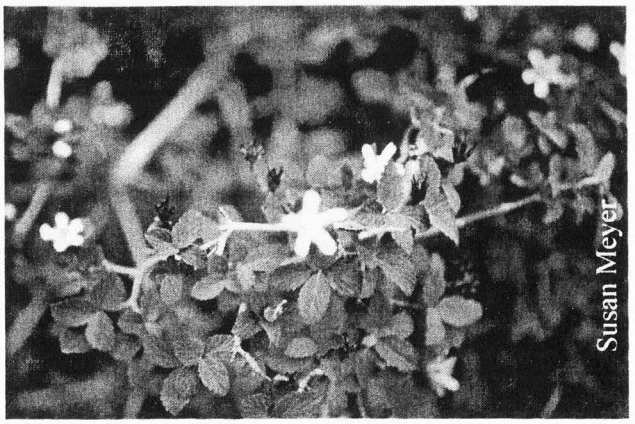
Saxifragaceae-Saxifrage family

Appearance

SIZE: grows to 6' tall and 4' wide
FORM: much branched shrub, irregular
ROOTS: deep and spreading
LEAVES: ½-2", oval, serrate, thick, deeply veined; medium texture, green above, paler below turning orange and scarlet in fall
FLOWER: ½" white, showy, fragrant; May-July
FRUIT: dry, brown; fall-winter
BARK: reddish, exfoliating
WINTER: red-brown; intricate patterns

Natural Habitat

HABITAT AND RANGE: WY and UT, south to NM and AZ
ELEVATION: 4000-10,500'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: coarse to rocky, pH 6.0 to 6.5, deep, well-drained, dry or moist
EXPOSURE/ASPECT: sun; all



Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low (18+" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: slow to medium
BEST USE: showy ornamental, rock garden
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

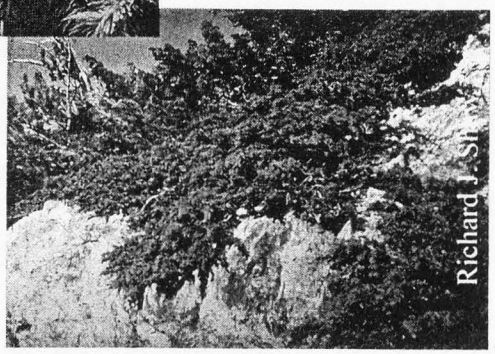
Comments

Waxflower grows in Utah's southern mountains and along the walls of the canyons.

Juniperus communis

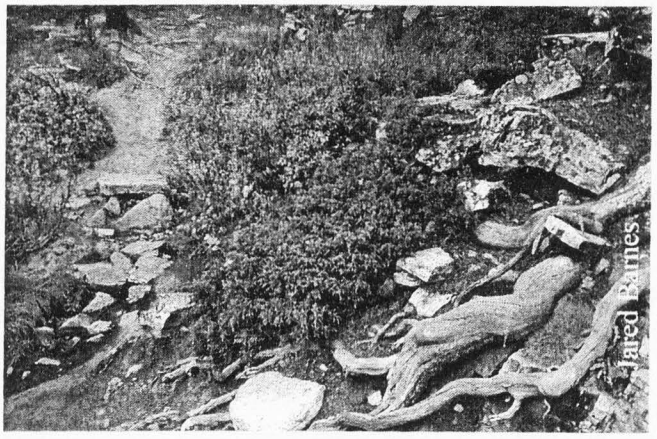
Common Juniper

Cupressaceae-Cypress family



Appearance

SIZE: grows up to 3' tall and 8-10' wide
FORM: lateral ascending branches, in dense patches
ROOTS: fibrous spreading
LEAVES: small, awl-shaped, green below, a white band above; fine texture, green to whitish green
FLOWER: inconspicuous
FRUIT: glaucous-blue berrylike cone; all seasons
BARK: brown-gray
WINTER: evergreen, attractive



Natural Habitat

HABITAT AND RANGE: circumpolar; in cool places
ELEVATION: 5300-11,000'
PLANT ASSOCIATION: subalpine, mid-montane
SOIL: fine to coarse, organic, pH 7.0, deep, dry to moist, well-drained
EXPOSURE/ASPECT: sun or shade; northeast

Landscape Use

HARDINESS ZONES: 1-5
WATER USE: low to medium (10-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: slow to moderate
BEST USE: low evergreen shrub for shady place
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

The common juniper is Utah's only native low-growing juniper, forming dense rings under other conifers. It has fine foliage colors and textures. Plant it in a protected area as it can winterburn if exposed.

Juniperus osteosperma

Utah Juniper

Cupressaceae-Cypress family

Appearance

SIZE: grows to 20' tall and 10' wide
FORM: tree, may be multi-branched; dense-rounded; slightly higher than broad, variable
ROOTS: fibrous, wide spreading
LEAVES: small, scale-like, glandular dotted, smooth margins; medium texture, green to yellowish green
FLOWER: dieocious; inconspicuous
FRUIT: glaucous-blue berrylike cone, ¼-¾" diameter, summer; reddish brown, winter
BARK: thin ash-gray, scaly
WINTER: evergreen

Natural Habitat

HABITAT AND RANGE: OR to WY, south to NM and CA
ELEVATION: 2800-8000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub
SOIL: fine to coarse and rocky, pH 7.0-8.0, deep, well-drained, dry
EXPOSURE/ASPECT: sun; all, south at higher elevations

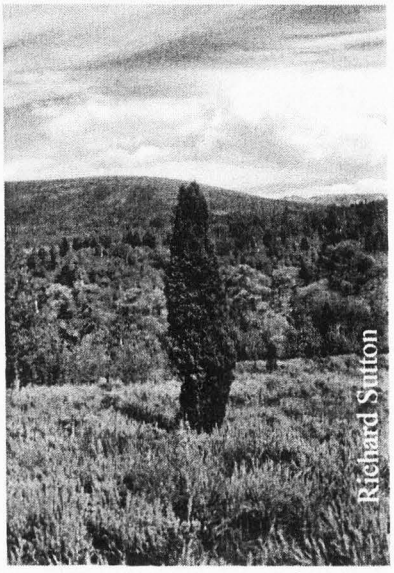
Landscape Use

HARDINESS ZONES: 3-7
WATER USE: xeric to low (8-17" yr.)
ESTABLISHMENT: minimal watering
GROWTH RATE: slow
BEST USE: screen, windbreak, evergreen, Bonsai
WILDLIFE VALUE: rodents, birds
COMPANION PLANTS: see appendix A

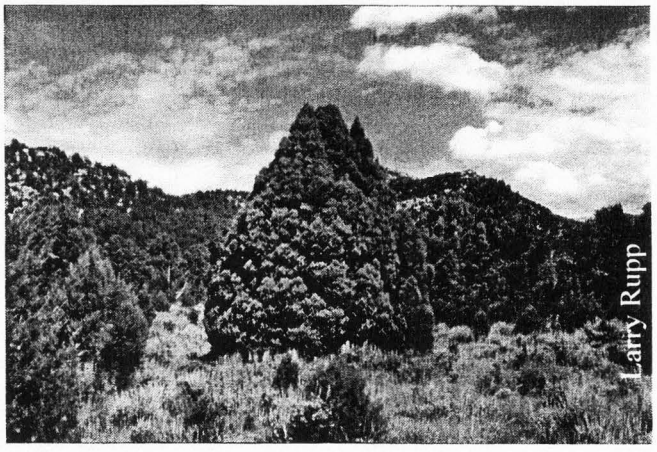
Comments

Utah juniper is very drought, cold, and heat resistant and tolerant of a wide variety of soils.


Richard J. Shaw


Richard Sutton

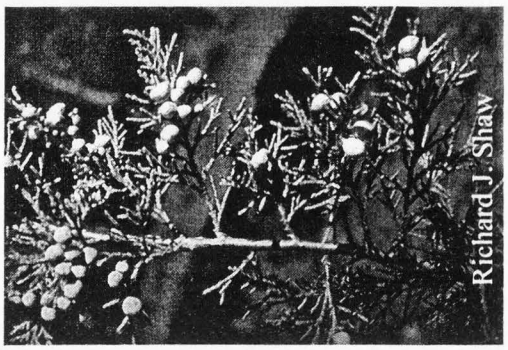

Robert Telgen


Larry Rupp

Juniperus scopulorum

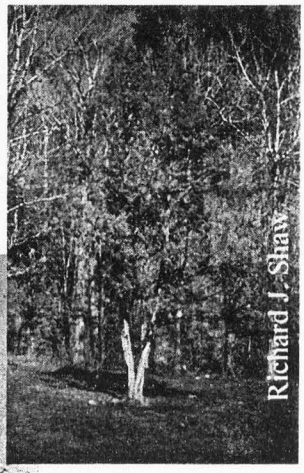
Rocky Mountain Juniper

Cupressaceae-Cypress family



Appearance

SIZE: grows 15-20' tall and 10-15' wide
FORM: irregular crown; symmetrical, pointed; pyramidal; single-stems to multi-branching when shrubby
ROOTS: fibrous, spreading; deep, compact
LEAVES: small, scale-like, glandular dotted, smooth margins; fine texture, silver-green to dark green
FLOWER: dioecious or monecious; inconspicuous
FRUIT: small, glaucous-blue berrylike cone, takes 2 years to mature; summer-winter
BARK: red-brown to gray-brown; twisted, scaly, interesting
WINTER: evergreen



Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM west to AZ
ELEVATION: 5000-9000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: calcareous soils, fine to coarse, pH 7.0-8.0, shallow to moderate, well-drained
EXPOSURE/ASPECT: sun; all, south at higher elevations

Landscape Use

HARDINESS ZONES: 3-7
WATER USE: xeric to medium (9-20" yr.)
ESTABLISHMENT: irrigate first season, then adaptable to water conditions
GROWTH RATE: slow; 13-14' at age 40, 18' at age 80
BEST USE: screen, windbreak (toughness and retention of lower branches), Bonsai
WILDLIFE VALUE: birds, rodents; deer will browse as last resort
COMPANION PLANTS: see appendix A

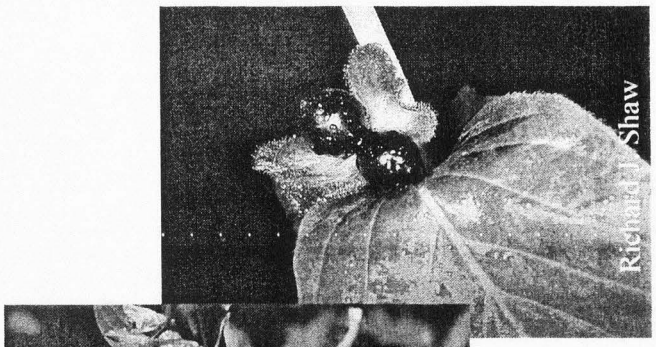
Comments

Rocky Mountain juniper grows at higher elevations and under more mesic conditions than Utah juniper (*J. osteosperma*). Numerous cultivars including blue ones are available: 'Pathfinder' (narrow pyramidal), 'Wichita Blue' (tall pyramidal). This plant is pruning tolerant and often used in landscapes because it is widely available. Many cultivars do well in cultivated landscape settings but cannot survive when planted in harsh, exposed environments.

Lonicera involucrata

Twinberry, Bearberry Honeysuckle

Caprifoliaceae-Honeysuckle family



Appearance

SIZE: grows up to 9' tall and 8-10' wide
FORM: upright shrub
ROOTS: fibrous, shallow
LEAVES: opposite, 4" long, ovate, accuminate, prominent venation; medium texture, green turning brown in fall
FLOWER: yellow, greenish, some are pink; March-April
FRUIT: black ovoid berry surrounded by purplish, attractive involucre bracts; late summer-fall
BARK: gray
WINTER: not particularly interesting

Natural Habitat

HABITAT AND RANGE: WA to MT, south to CO and CA
ELEVATION: 4500-10,500'
PLANT ASSOCIATION: subalpine, mid-montane, riparian shrub
SOIL: medium texture, pH 7.0, moderate to shallow, moist, well-drained
EXPOSURE/ASPECT: shade; north slopes

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: medium to medium-high
ESTABLISHMENT: irrigate for first years
GROWTH RATE: rapid under cultivation
BEST USE: ornamental shrub in masses, interesting flower and fruit
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

Twinberry suckers and can become coarse and unkempt under cultivation. Utah honeysuckle (*L. utahensis*) is similar to twinberry but is a smaller shrub with a larger flower, reddish berry, and blunter leaf.

Mahonia fremontii

Fremont Mahonia

Berberidaceae-Barberry family

Appearance

SIZE: grows 5-10' tall
FORM: shrub with spreading branches
ROOTS: branching taproot
LEAVES: 3-7 leaflets (1" long, ½" wide), wavy margins with 3 large teeth with sharp prickles, holly-like; blue-green turning shades of red and purple in winter
FLOWER: ½", yellow, in bunches of 3 to 9, very fragrant
FRUIT: yellow to orange or red, hollow, to ¾"
BARK: rich yellow
WINTER: evergreen (broad-leaved)

Natural Habitat

HABITAT AND RANGE: CO, UT, NM, AZ
ELEVATION: 4000-7000'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub, salt desert scrub
SOIL: well-drained
EXPOSURE/ASPECT: sun; all

Landscape Use

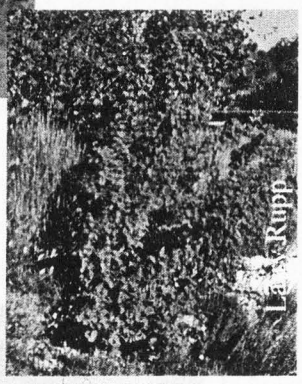
HARDINESS ZONES: 3-6
WATER USE: xeric
ESTABLISHMENT: easy if not overwatered
GROWTH RATE: slow
BEST USE: specimen
WILDLIFE VALUE: rodents and birds eat fruit
COMPANION PLANTS: see appendix A

Comments

Fremont mahonia is attractive year-round and is especially spectacular in full bloom. Native Americans have used the roots to make a yellow dye.


Susan Meyer


Roger Kjelgren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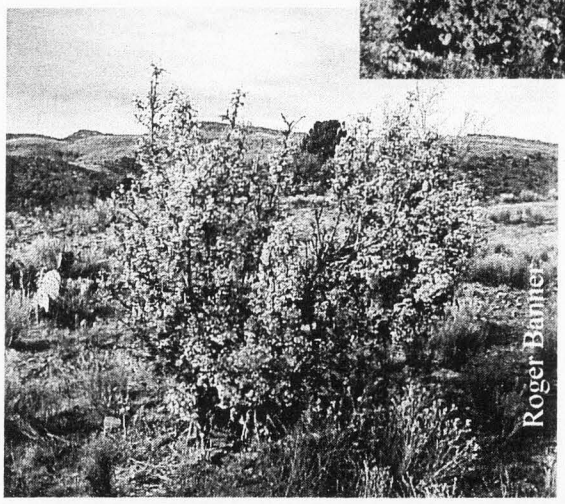
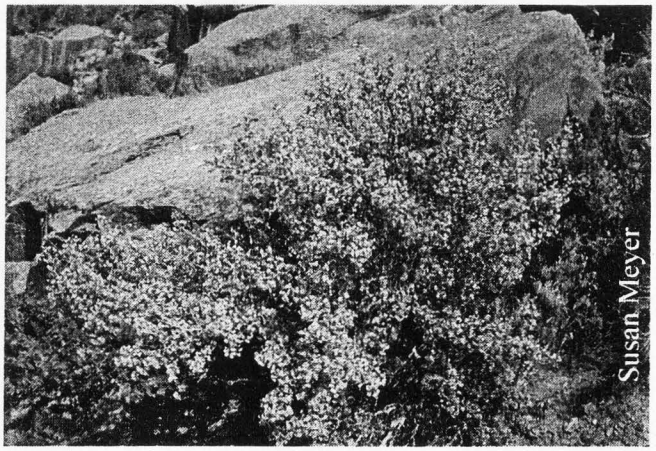

Roger Banner


Susan Meyer

Mahonia repens

Creeping Oregon Grape

Berberidaceae-Barberry family

Appearance

SIZE: grows 1' tall and 3-4' wide
FORM: prostrate, creeping
ROOTS: creeping and stoloniferous; deep
LEAVES: pinnately compound with 3-7 leaflets (1-3½" long), wavy margins with bristle tips; hollylike; medium to medium-coarse texture, dark, glossy green turning to red or purple in fall (depending on amount of sun)
FLOWER: yellow, racemes of small, fragrant flowers; spring
FRUIT: ¼" berry, black or bluish with a glaucous bloom; September
BARK: reddish brown
WINTER: evergreen (broad-leaved), attractive

Natural Habitat

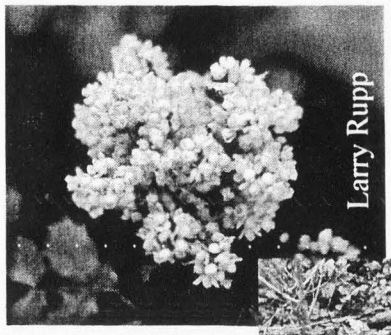
EXTENSION: WA to MT, south to NM and CA
ELEVATION: 3700-9800'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, riparian shrub
SOIL: coarse to medium loam, low organic material, pH 5.5-7.0, shallow to moderate, dry to moist, well-drained
EXPOSURE/ASPECT: sun to shade; all

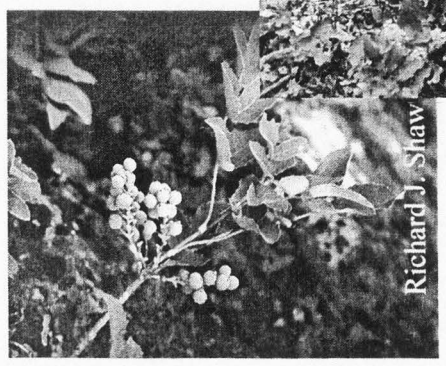
Landscape Use

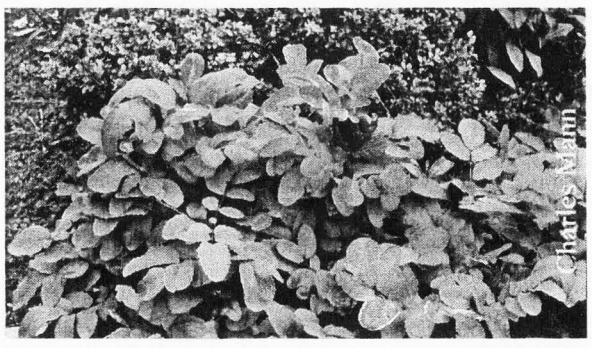
HARDINESS ZONES: 4-7
WATER USE: low to medium (16" yr.)
ESTABLISHMENT: irrigate in sun, can withstand dry shade
GROWTH RATE: moderate
BEST USE: ground cover, steep slopes, rock gardens
WILDLIFE VALUE: birds; deer
COMPANION PLANTS: see appendix A

Comments

Creeping Oregon grape is one of Utah's few broad-leaf evergreens and has year-round interest. It is shade tolerant and works good as an understory to trees. It can winterburn on an exposed site and is an alternate host for rust.







Pachystima myrsinites

Mountain Lover

Celastraceae-Stafftree family

Appearance

SIZE: grows 2-3' tall and 4-5' wide
FORM: densely branched, creeping, spreading, very leafy
ROOT: fibrous, layers, shallow
LEAVES: ½-¾", oval, thick, leathery, revolute margins, serrate; fine texture, dark green
FLOWER: small, purple disks
FRUIT: inconspicuous
BARK: inconspicuous
WINTER: evergreen (broad-leaved)

Natural Habitat

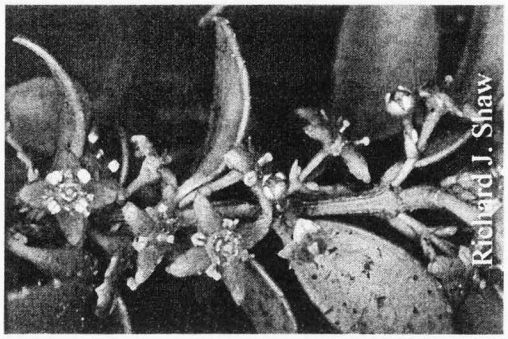
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 5500-10,500'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, grass/forb
SOIL: medium to coarse, pH 5.5-6.5, shallow to moderate, moist, well-drained
EXPOSURE/ASPECT: shade; north

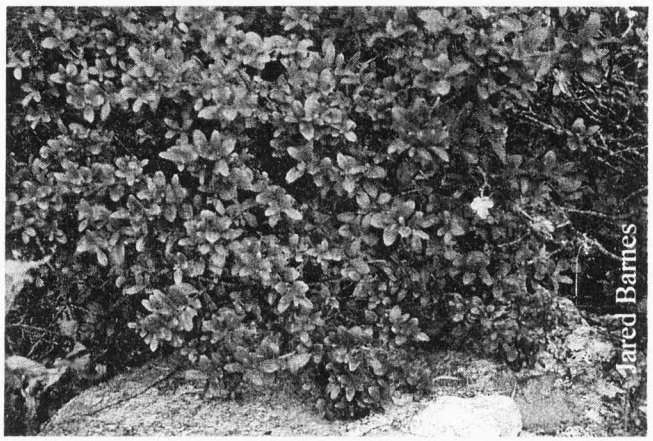
Landscape Use

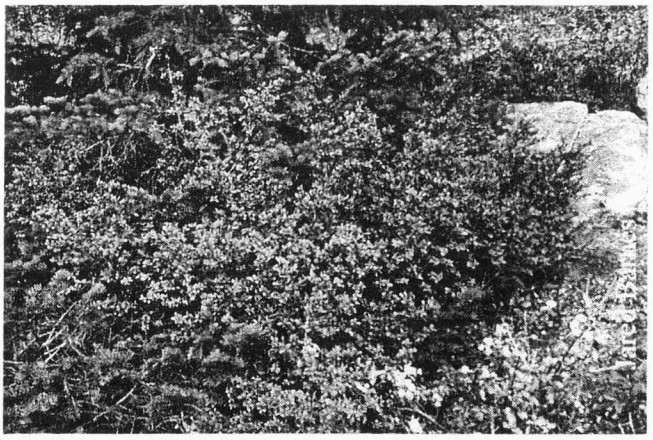
HARDINESS ZONES: 3-4
WATER USE: medium
ESTABLISHMENT: plant in shade
GROWTH RATE: slow to moderate
BEST USE: ground cover under trees, edging
WILDLIFE VALUE: unknown
COMPANION PLANTS: see appendix A

Comments

Mountain lover looks very similar to boxwood and is one of Utah's few broad-leaf evergreens. It may winterburn if exposed, so plant it in a protected area.







Peraphyllum ramosissimum

Squaw Apple

Rosaceae-Rose family

Appearance

SIZE: grows 1½-5' tall
FORM: shrub, intricately branched
ROOTS: fibrous taproot
LEAVES: alternate, 1-1½" long, lanceolate; gray-green
FLOWER: white to pink
FRUIT: yellow-orange apple
BARK: gray, smooth
WINTER: nice twig patterns

Natural Habitat

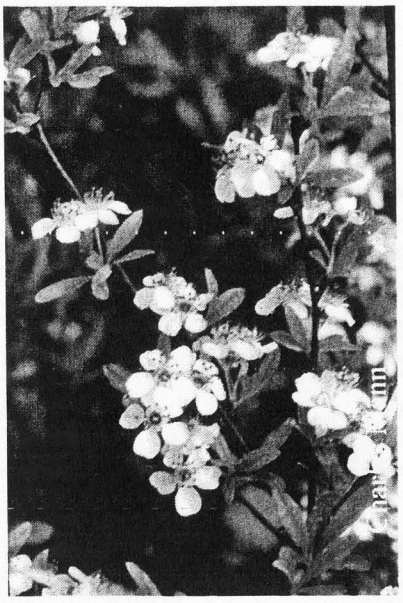
HABITAT AND RANGE: OR and ID, south to CA and CO
ELEVATION: 5000-8000'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub
SOIL: well-drained
EXPOSURE/ASPECT: sun; all

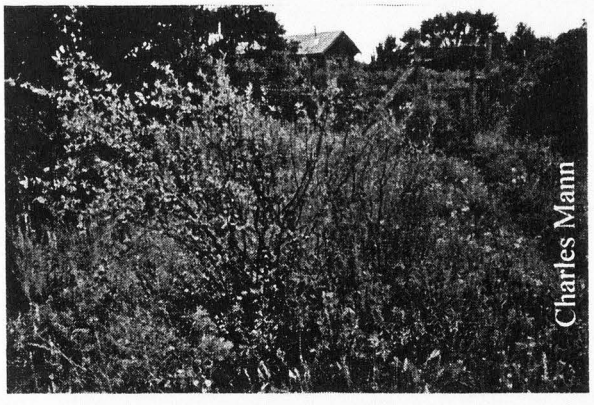
Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low (8-14" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: slow to medium
BEST USE: shrub screen, rock garden
WILDLIFE VALUE: birds, chipmunks, ground squirrels, deer; black bears use fruit
COMPANION PLANTS: see appendix A

Comments

Squaw apple is one of the hardiest native shrubs and had tremendous wildlife value. Pioneers used it as rootstock for apples.





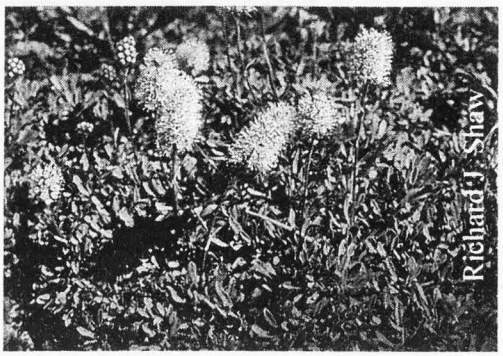
Petrophytum caespitosum

Rock Spirea, Tufted Rockmat

Rosaceae-Rose family

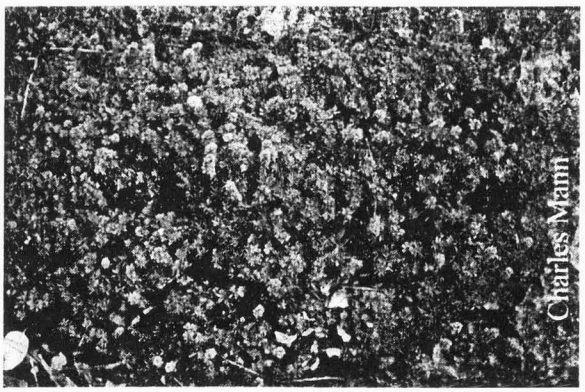
Appearance

SIZE: grows 3-6" tall and 2-3' wide
FORM: mat-like
ROOTS: woody caudices, long taproot
LEAVES: small, in compact rosettes; fine texture, green to blue-green
FLOWER: 6" long, bottlebrush-like, racemes, creamy-white; May
FRUIT: inconspicuous, stalks interesting; summer-winter
BARK: brown, shreddy
WINTER: attractive fruit stalks, evergreen



Natural Habitat

HABITAT AND RANGE: faces of sheer rock in canyons and mountainsides; WA to MT, south to NM and CA
ELEVATION: 3700-6200'
PLANT ASSOCIATION: mountain brush, subalpine, mid-montane
SOIL: rock crevices, pH 7-8, shallow, dry, well-drained
EXPOSURE/ASPECT: sun to shade; all

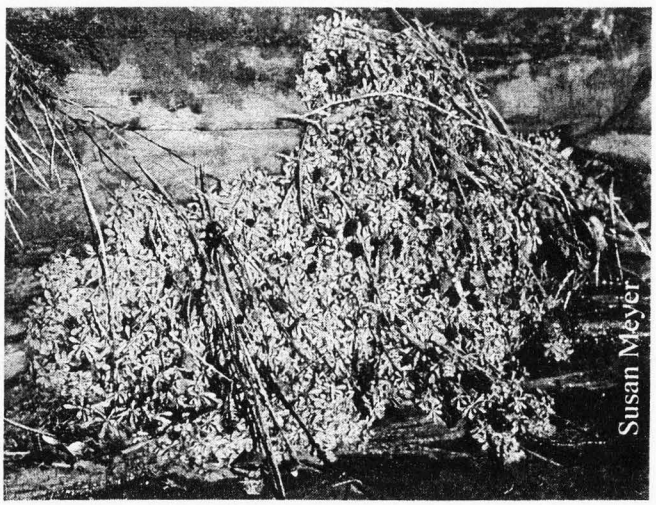


Landscape Use

HARDINESS ZONES: 3-7
WATER USE: low
ESTABLISHMENT: plant in rock crevice, minimal watering
GROWTH RATE: slow
BEST USE: rock garden, ground cover
WILDLIFE VALUE: rodents, birds, browse
COMPANION PLANTS: see appendix A

Comments

Rock spirea forms a thick gnarled mat of woody stems. This plant is attractive year-round, even when there is nothing remaining except for the mat of dead woody stems.



Philadelphus microphyllus

Littleleaf Mockorange

Saxifragaceae-Saxifrage family

Appearance

SIZE: grows to 6' tall and 4' wide
FORM: ascending shrub; rounded crown
ROOTS: fibrous, spreading
LEAVES: small, narrow; fine texture, green to yellow-green
FLOWER: 1½" white, solitary to 3's; fragrant; late spring, early summer
FRUIT: interesting, ½" seed capsules in heads, tan; fall-winter
BARK: reddish-brown tan, exfoliating
WINTER: reddish-brown, medium texture branching

Natural Habitat

HABITAT AND RANGE: UT, ID, WY and CO
ELEVATION: 4000-8700'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: rocky or gravelly, pH 7.0-7.5, moderate depth, dry, well-drained
EXPOSURE/ASPECT: sun; all

Landscape Use

HARDINESS ZONES: 4-10
WATER USE: low
ESTABLISHMENT: irrigate for first years with occasional deep soaking
GROWTH RATE: moderate to rapid
BEST USE: informal ornamental shrub, color accent, hedge or low screen
WILDLIFE VALUE: unknown
COMPANION PLANTS: see appendix A

Comments

Littleleaf mockorange has an outstanding floral display with showy spring flowers. This plant tolerates neglect and its lack of disease and insect problems makes it an easy shrub to grow. Another great mockorange, *P. lewisii*, is the Idaho state flower and its showy, white blossoms have a sweet orange blossom fragrance. It is commercially available and grows (6-8' x 4-5'), making it a good choice for the Utah landscape. In the same family, the fendlerbush (*Fendlera rupicola*) is a tall shrub (6-8' x 5-6') with slender green foliage and pink-white fragrant flowers in spring.

Physocarpus malvaceus

Mallow-leaved Ninebark

Rosaceae-Rose family

Appearance

SIZE: grows 3-6' tall and 3-4' wide
FORM: leggy, stemmy shrub, arching to ascending
ROOTS: shallow fibrous, rhizomatous
LEAVES: large, maple-shaped; medium texture, green turning yellow to brown in fall
FLOWER: yellow stamens and white to pink petals in masses; attractive; May-July
FRUIT: small, dry capsules; fall, winter
BARK: exfoliating, brownish tan
WINTER: interesting bark

Natural Habitat

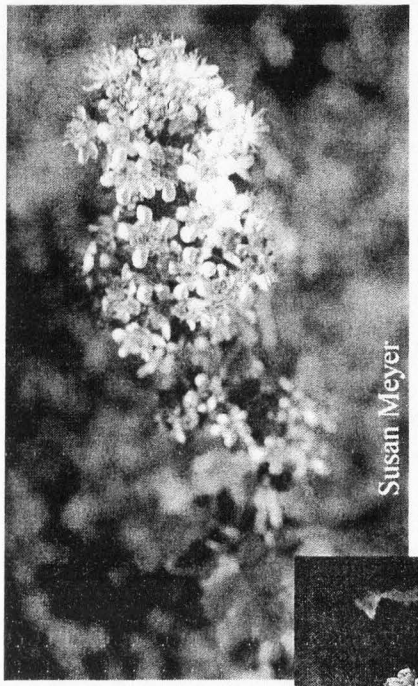
HABITAT AND RANGE: streamsides; WA to MT, south to WY and OR
ELEVATION: 5300-10,800'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, riparian shrub
SOIL: medium, pH 7.0-7.5, deep, moist, organic, well-drained
EXPOSURE/ASPECT: shade to part sun; north

Landscape Use

HARDINESS ZONES: 2-5
WATER USE: medium
ESTABLISHMENT: irrigate for first years
GROWTH RATE: moderate
BEST USE: ornamental shrub, erosion control
WILDLIFE VALUE: birds, browse
COMPANION PLANTS: see appendix A

Comments

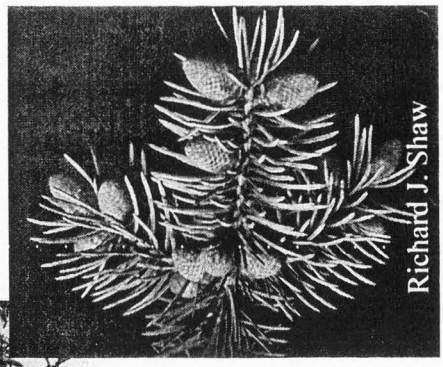
Mallow-leaved ninebark is a nice flowering shrub and can be easily recognized by its bark which tends to peel off in narrow strips.



Picea pungens

Blue Spruce

Pinaceae-Pine family

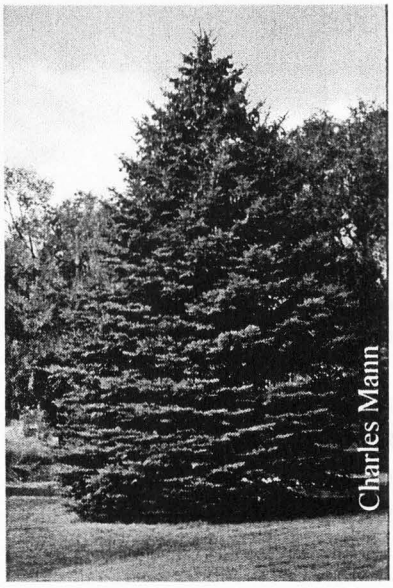


Appearance

SIZE: grows 60-80' tall and 20-30' wide
FORM: large tree, pyramidal crown; loses lower branches after 70-80 years
ROOTS: wide-spreading, moderately deep
LEAVES: 1" needles, squarish, on smooth twigs; fine to medium texture; glaucous bluegreen to dark green
FLOWER: yellow cone, small
FRUIT: 2½-4" cone, papery, pendulous; summer, fall, winter
BARK: thick, gray, furrowed
WINTER: evergreen, effective

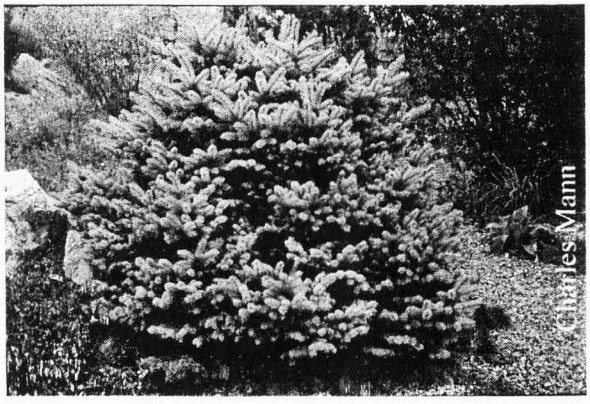
Natural Habitat

HABITAT AND RANGE: streamsides; MT, ID, south to AZ and NM
ELEVATION: 6000-9400'
PLANT ASSOCIATION: subalpine, mid-montane, riparian forest
SOIL: medium texture, pH 7.0, moderate depth, moist, organic, well-drained
EXPOSURE/ASPECT: takes shade when young, sun when older; north



Landscape Use

HARDINESS ZONES: 2-7
WATER USE: low to medium-high (14-27" yr.)
ESTABLISHMENT: irrigate for first years
GROWTH RATE: slow
BEST USE: screen, specimen for large area, wind-break
WILDLIFE VALUE: birds, deer, squirrels
COMPANION PLANTS: see appendix A



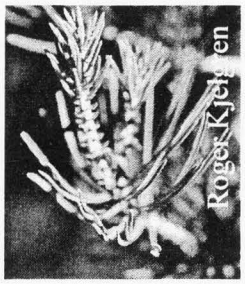
Comments

Blue spruce is the Utah state tree. It is a beautiful, slow growing tree, but allow enough room for growth. It always looks best if it is allowed to keep branches and foliage right to the ground. It provides a good visual, sound, and wind screen. The cooley spruce gall agelid can cause brown galls to form on twig tips. The tree can also have heavy needle fall. Numerous cultivars are available: 'Argentea' (silver- white needles), 'Glauca Globosa', 'Glauca Pendula', 'Hoopsii' (dense pyramidal), 'Mission Blue' (very blue). A related species, the Englemann spruce (*P. engelmannii*) is a large, well formed tree that grows up to 100' tall at high elevations. It does not do well at lower, warmer, drier locations.

Pinus edulis

Pinyon Pine

Pinaceae-Pine family

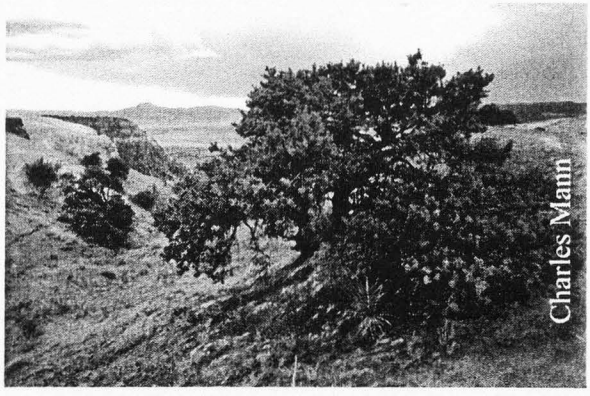


Appearance

SIZE: grows 20-35' tall and 10-15' wide
FORM: round bushy, small tree; low and picturesque, sometimes pyramidal
ROOTS: extensive, moderate to shallow
LEAVES: 1-2" stiff, incurved needles in 2's, persist for 3-9 years; medium texture, yellow green to gray green
FLOWER: yellow clusters; early summer
FRUIT: 1-2½" cone, roundish, brown, with large (½") edible seeds; summer-winter
BARK: gray-reddish brown furrowed bark, fairly thin, narrow scales
WINTER: evergreen

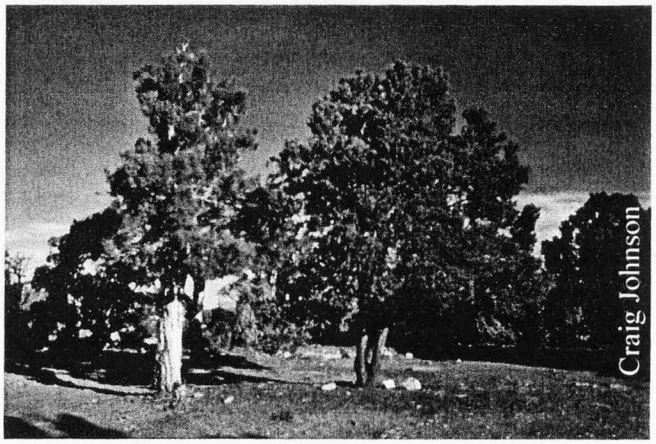
Natural Habitat

HABITAT AND RANGE: UT and WY, south to NM and AZ
ELEVATION: 5000-7000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: coarse to rocky, pH 7.0-7.5, deep to shallow, well-drained, dry
EXPOSURE/ASPECT: sun; all



Landscape Use

HARDINESS ZONES: 4-8
WATER USE: low to medium (12-20" yr.)
ESTABLISHMENT: no irrigation required
GROWTH RATE: slow
WILDLIFE VALUE: birds, rodents
BEST USE: screen, windbreak, Bonsai
COMPANION PLANTS: see appendix A



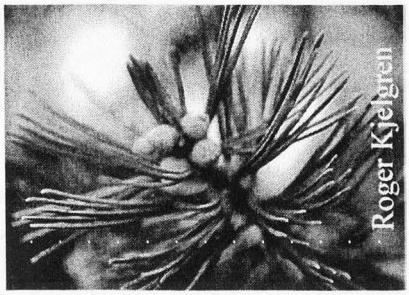
Comments

Pinyon pine is a picturesque and rounded shrub/tree for dry situations. It has edible pine nuts as its relative, the single-needle pinyon (*P. monophylla*), which has needles born singly that remain on the tree 4-12 years. Single-needle pinyon grows at mid-elevations and is abundant in western Utah and a few, isolated locations in northern Utah. It prefers dry sites and full sun (zones 5-9).

Pinus flexilis

Limber Pine

Pinaceae-Pine family

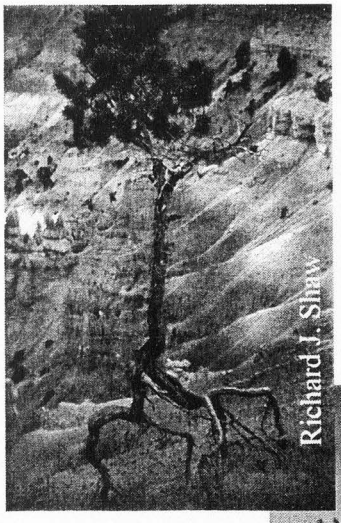


Appearance

SIZE: grows 25-35' tall and 20-30' wide
FORM: medium-sized tree with round top, informal plume-like or dropping branches, picturesque
ROOTS: taproot, with several large laterals
LEAVES: 1-3", 5 bundled needles, stiff, curved upward, persist 5-6 years; medium to coarse, green to blue-green
FLOWER: small reddish cone, inconspicuous
FRUIT: green cone ripening to 3-8" long brown cone; thick, non-pointed scales; large, wingless seeds; summer-winter
BARK: young bark is gray, platy; brown with age; good contrast on young trees
WINTER: evergreen

Natural Habitat

HABITAT AND RANGE: exposed slopes and ridges; WA to MT, south to NM and CA
ELEVATION: 6000-11,300'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: widely adapted to different soils, coarse texture, pH 6.5-7.0, shallow to moderate, well-drained, dry
EXPOSURE/ASPECT: sun; all



Landscape Use

HARDINESS ZONES: 2-7
WATER USE: low to medium (20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: slow
BEST USE: screen, windbreak, Bonsai
WILDLIFE VALUE: birds, rodents
COMPANION PLANTS: see appendix A

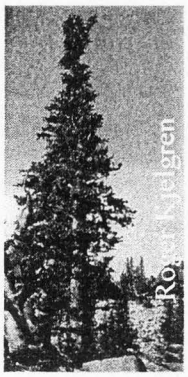
Comments

Limber pine is seldom used but should be used more often. It has nice dark green color and is picturesque in age. It is very tough with a wide range of adaptations to withstand high winds and heavy snows. Cultivars include: 'Columnaris', 'Glauca Pendula', 'Nana', 'Pendula', and 'Vandewolf's Pyramid' (upright; fast growth; blue).

Pinus longaeva

Bristlecone Pine

Pinaceae-Pine family

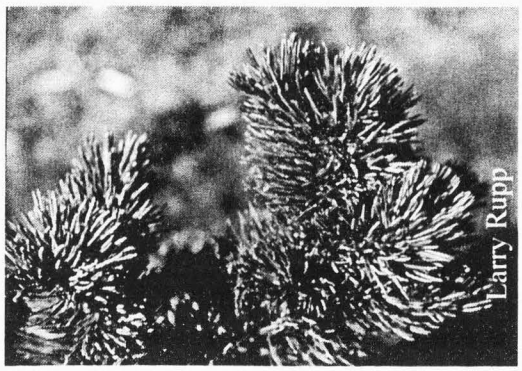


Appearance

SIZE: grows 20-25' tall and 15-20' wide
FORM: pyramidal to irregular in youth, definitely irregular in age
ROOTS: deep and wide-spreading laterals
LEAVES: ¾-2" needles in groups of five, curved, stiff, remain on tree 10-17 years; medium texture (coarser with age), dark green
FLOWER: 3/8" orange-red cone; year-round
FRUIT: 2¾-3½" red-brown cone; year-round
BARK: thin, smooth, and gray in youth; furrowed and reddish brown in age
WINTER: evergreen

Natural Habitat

HABITAT AND RANGE: CA to NV and UT
ELEVATION: 7200-10,700'
PLANT ASSOCIATION: subalpine, mid-montane
SOIL: limestone or dolomite parent material, rocky, pH 6.5-7.5, shallow to moderate, dry, well-drained
EXPOSURE/ASPECT: sun (shade intolerant); all

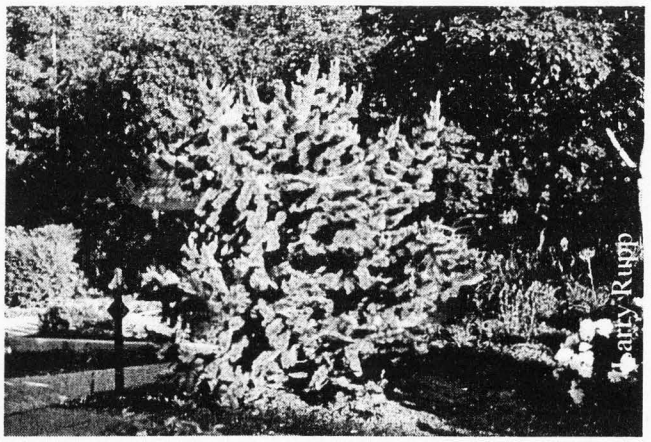


Landscape Use

HARDINESS ZONES: 2-6
WATER USE: low (10-14" yr.)
ESTABLISHMENT: occasional watering
GROWTH RATE: very slow
BEST USE: specimen, Bonsai, naturalized areas
WILDLIFE VALUE: rodents, birds
COMPANION PLANTS: see appendix A

Comments

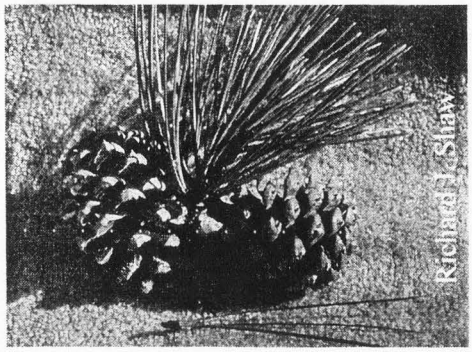
Bristlecone pine is very slow growing and long-lived (over 4,000 years) tree with a nice green color and interesting, sometimes contorted form. It would make it a good tree for small spaces and should be used more often.



Pinus ponderosa

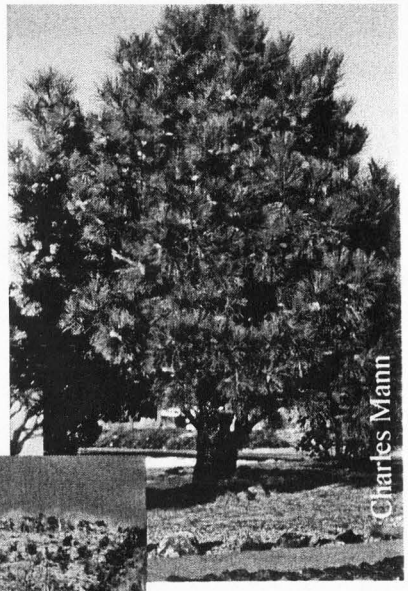
Ponderosa Pine

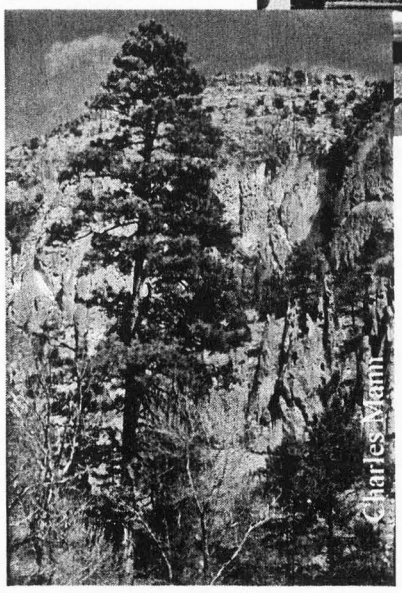
Pinaceae-Pine family



Appearance

SIZE: grows 60-80' tall and 30-40' wide
FORM: large tree, broad and round-topped; symmetrical in youth; conical, spirelike; picturesque
ROOTS: branching taproot
LEAVES: 4-11" needles in groups of 2's or 3's, persist 3-6 years; medium texture, yellowish-green
FLOWER: yellowish cone, small
FRUIT: green cone ripening to 6" brown cone with stout prickles; summer-winter
BARK: thick brown-cinnamon scales, platy; inner bark has vanilla smell; interesting
WINTER: evergreen



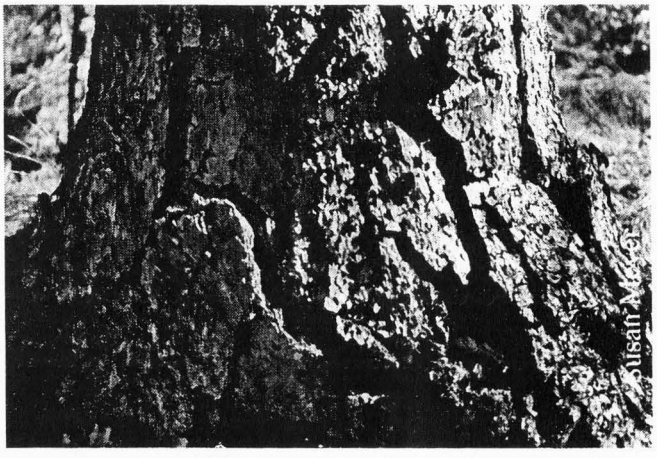


Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 5200-8800'
PLANT ASSOCIATION: mid-montane, mountain brush
SOIL: medium to coarse, pH 6.5-7.0, deep, well-drained
EXPOSURE/ASPECT: shade in youth, sun in age; south, west

Landscape Use

HARDINESS ZONES: 3-7
WATER USE: low to medium (10-20" yr.)
ESTABLISHMENT: good
GROWTH RATE: slow to moderate
BEST USE: screen, windbreak, specimen tree, native planting
WILDLIFE VALUE: birds, rodents, porcupines
COMPANION PLANTS: see appendix A



Comments

Ponderosa pine is a large, long-needled tree that is commercially valuable as lumber, mill work, railroad ties. Its thick bark resists fire. It also tolerates alkaline soil.

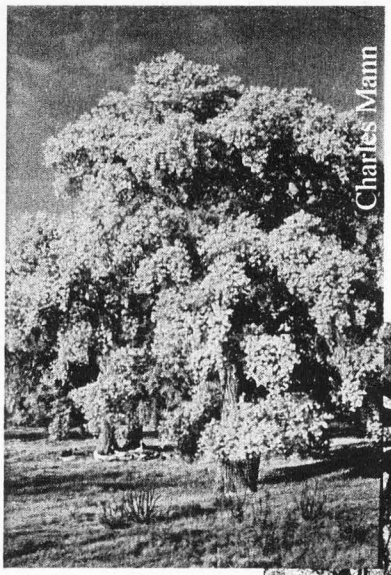
Populus fremontii

Freemont Cottonwood

Salicaceae-Willow family

Appearance

SIZE: grows 50-60' tall and wide
FORM: tree
ROOTS: deep and spreading
LEAVES: 3-6" long and 4-5" wide, deltoid, ovate, toothed; yellow green to green turning golden yellow in fall
FLOWER: dioecious catkins
FRUIT: white, fuzzy cotton on female trees
BARK: smooth and whitish when young, deeply furrowed and grayish brown in age
WINTER: coarse branching, interesting young bark



Natural Habitat

HABITAT AND RANGE: flood plains; CO, AZ, NM, NV, and UT
ELEVATION: 2500-7000'
PLANT ASSOCIATION: riparian forest
SOIL: high water table
EXPOSURE/ASPECT: full sun; all

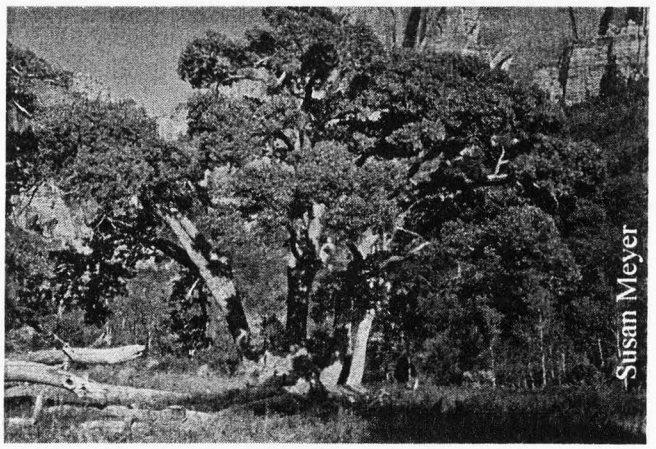
Landscape Use

HARDINESS ZONES: 5-9
WATER USE: medium to high
ESTABLISHMENT: must be irrigated

GROWTH RATE: fast
BEST USE: large open areas
WILDLIFE VALUE: nesting cavities and cover for birds and mammals; beavers will take
COMPANION PLANTS: see appendix A

Comments

Freemont cottonwood is a good, large tree that is worth having in the right setting and can be pruned for shape and structure. Cottonwoods and willows can easily be propagated by taking 10" or longer cuttings off of young branches in the winter and planting them in the spring with about 1" showing above ground. The narrowleaf cottonwood (*P. angustifolia*) is common near streams at the mouths of our canyons. It is large spreading, fast growing, and short lived.



Populus tremuloides

Quaking Aspen

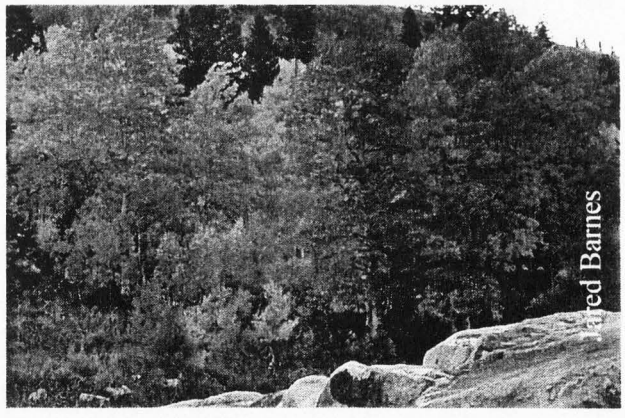
Salicaceae-Willow family

Appearance

SIZE: grows 20-60' tall and 25-30' wide
FORM: slender tree (clone forming); globose to pyramidal head
ROOTS: large underground laterals; shallow and spreading
LEAVES: 1½-3", broadly ovate, acute tip, broad base, interesting sound and movement in wind; medium texture, green turning yellow to orange in fall
FLOWER: greenish white catkins; spring
FRUIT: white hair tufts; spring
BARK: white and smooth turning rough, furrowed, and black with old age
WINTER: white to cream green bark, vertical branches

Natural Habitat

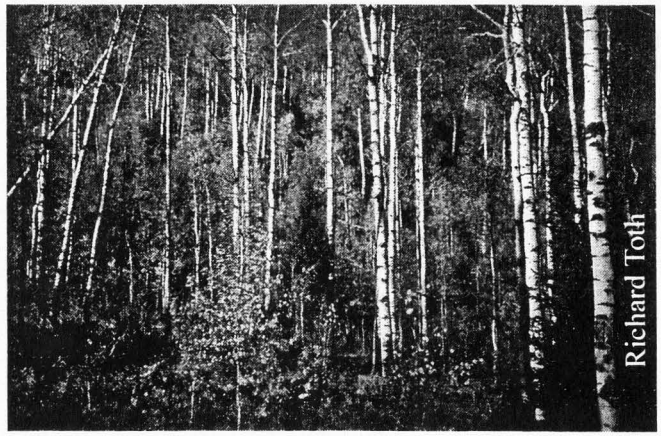
HABITAT AND RANGE: watercourses, canyons, and mountainsides; Labrador to AK, south to TN and n. Mexico
ELEVATION: 4500-10,250'
PLANT ASSOCIATION: subalpine, mid-montane, riparian forest
SOIL: medium to coarse texture, pH 6.5-7.0, shallow, well-drained, dry to moist
EXPOSURE/ASPECT: sun; north at lower elevations



Landscape Use

HARDINESS ZONES: 3-7
WATER USE: low to medium-high (7-40" yr.)
ESTABLISHMENT: provide adequate moisture, mulch, and protection

GROWTH RATE: rapid
BEST USE: high altitude shade tree; background
WILDLIFE VALUE: beaver, elk, deer
COMPANION PLANTS: see appendix A



Comments

The quaking aspen is a beautiful tree but suffers from many problems (borers, cankers, leaf scorch, leaf spot, galls, etc.) when planted in low elevation, urban landscapes, thus making it a short-lived tree. It is perhaps over-planted in Utah and not recommended to be planted below 6,000' in elevation, but if native, do not destroy, but simply appreciate. It looks best when planted in clumps or close on center, emulating natural conditions. Aspens will sucker, forming clones of the parent tree.

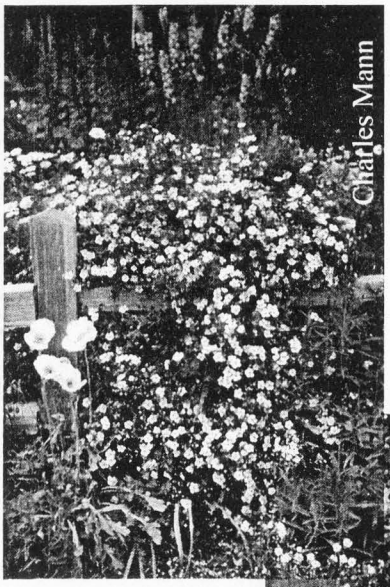
Potentilla fruticosa

Shrubby Cinquefoil

Rosaceae-Rose family

Appearance

SIZE: grows 1-4' tall and 2-4' wide
FORM: much-branched shrub; round-topped
ROOTS: fibrous, spreading
LEAVES: 1" hairy, palmately 3-7 parted; fine texture, pale green to gray-green turning yellowish in autumn
FLOWER: ¾-1" bright yellow disks; summer (continuous)
FRUIT: inconspicuous, silky achene; summer-fall
BARK: shreddy
WINTER: twigs hold round-topped form



Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 5600-11,500'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, shrub steppe, grass/forb
SOIL: medium to fine, pH 6.5-7.0, shallow, moist, organic, well-drained
EXPOSURE/ASPECT: sun; semi-shade; all

Landscape Use

HARDINESS ZONES: 2-7
WATER USE: low to medium (10-20" yr.)
ESTABLISHMENT: performs best with supplemental water
GROWTH RATE: rapid
BEST USE: ornamental shrub border, color accent, mass planting, foundation
WILDLIFE VALUE: browse
COMPANION PLANTS: see appendix A

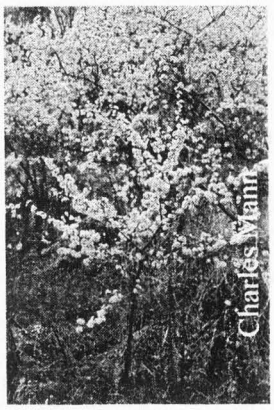
Comments

Shrubby cinquefoil is a choice, reliable flowering shrub that blooms all summer, although it dislikes prolonged, intense heat. Many cultivars of different flower color are available including: 'Abbottswood' (white), 'Goldstar' (deep yellow-gold, flowers up to 2" dia.), 'Princess' (pink), 'Red Ace' (red-orange that fades in heat), and 'Tangerine' (orange fading to yellow in heat).

Prunus americana

American Plum

Rosaceae-Rose family



Appearance

SIZE: grows to 15' tall and 5' wide
FORM: thicket-forming shrub or small tree
ROOTS: spreading, fibrous, suckering
LEAVES: 2-3" long, serrate, oblong to oval; medium to coarse; green
FLOWER: ½", red and white; effective early spring
FRUIT: 1" juicy plum, reddish; fall
BARK: dark brown, tinged with red; spiny stems
WINTER: thickets have sculptural form

Natural Habitat

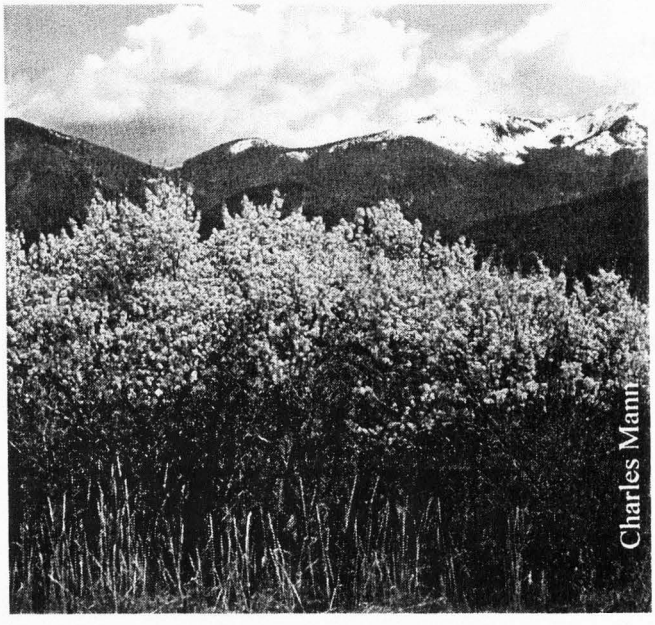
HABITAT AND RANGE: MT to UT, south to NM
ELEVATION: 3500-6000'
PLANT ASSOCIATION: mountain brush, riparian shrub
SOIL: medium, pH 7.0, moderate, dry to moist, well-drained, organic
EXPOSURE/ASPECT: sun; all

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium (14-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: rapid
BEST USE: barriers, backgrounds, spring flowers
WILDLIFE VALUE: cover and food for birds, rodents
COMPANION PLANTS: see appendix A

Comments

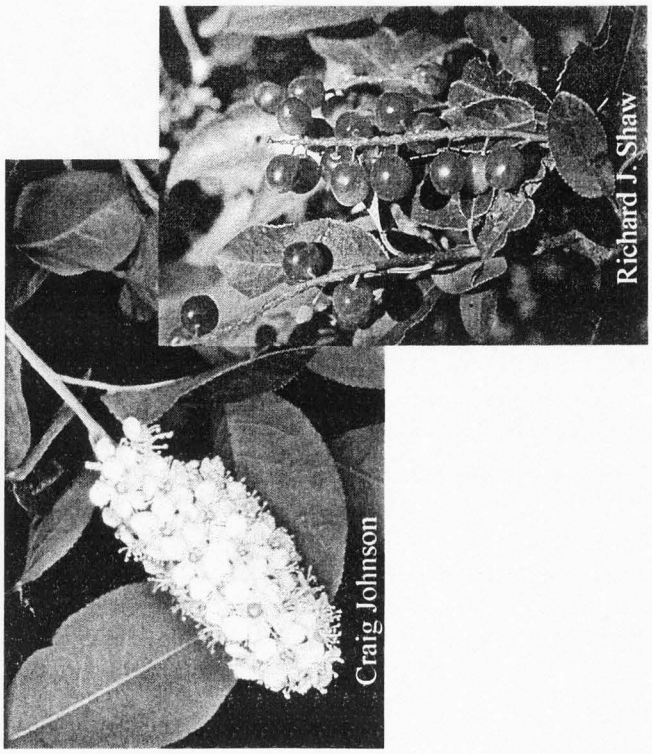
American plum is a native to the Midwest plains. It was introduced to Utah by the pioneers and has since become naturalized. It can be trained to a tree, but has vigorous suckers and messy fruits, which makes it great for wildlife habitat.



Prunus virginiana

Chokecherry

Rosaceae-Rose family



Appearance

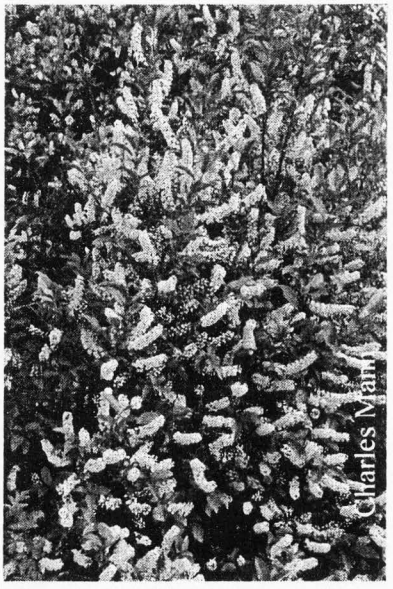
SIZE: grows 10-15' tall and 8-10' wide
FORM: shrub to small tree; in thickets
ROOTS: long laterals, suckers
LEAVES: 2-4" long, ovate, abruptly acute, round base, finely serrate margins; medium texture; dark green and glossy turning red-brown in autumn
FLOWER: small white in 4" racemes, attractive; April-June
FRUIT: dark purple to black berrylike drupe; attractive, late summer; edible
BARK: smooth, reddish brown with obvious lenticels
WINTER: erect branches

Natural Habitat

HABITAT AND RANGE: streamsides; WA to MT, south to NM and CA
ELEVATION: 4500-10,000'
PLANT ASSOCIATION: mid-montane, mountain brush, riparian shrub
SOIL: medium to coarse, pH 7.0, moderate depth, moist, well-drained
EXPOSURE/ASPECT: sun; north

Landscape Use

HARDINESS ZONES: 2-6
WATER USE: low to medium (14-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: moderate to rapid
BEST USE: ornamental shrub; in masses, fine spring flower accent; wildlife plantings, windbreaks, erosion control
WILDLIFE VALUE: birds and mammals
COMPANION PLANTS: see appendix A



Comments

Chokecherry can have vigorous sucker sprouting and is important for wildlife, especially birds which distribute its seeds far and wide. Its fruit is useful for making jam and wine. Available cultivars include 'Schubert' or 'Canada Red' (pyramidal form; red-green foliage).

Pseudotsuga menziesii

Douglas Fir

Pinaceae-Pine family

Appearance

SIZE: grows 50-80' tall and 15-25' wide
FORM: pyramidal, symmetrical; graceful drooping lower branches
ROOTS: well-developed, lateral, spreading
LEAVES: 1" flat needles, soft to touch, constricted at twig; medium to fine texture, green to blue-green
FLOWER: small, orange cone
FRUIT: 3" red-brown, papery cone with distinctive protruding three-pointed bracts; summer-winter
BARK: smooth, gray, thin in youth; gray-brown ridges in age
WINTER: evergreen

Natural Habitat

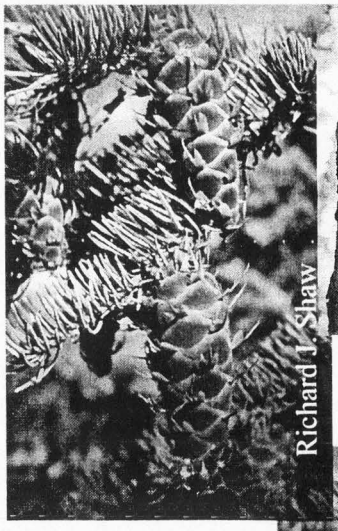
HABITAT AND RANGE: steep slopes; ID and MT, south to NM and AZ
ELEVATION: 5000-10,000'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: medium to coarse, pH 6.0-7.0, moist, organic, well-drained
EXPOSURE/ASPECT: shade when young; sun in age; north

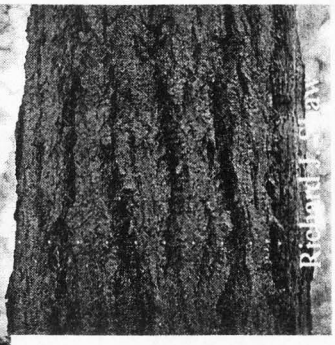
Landscape Use

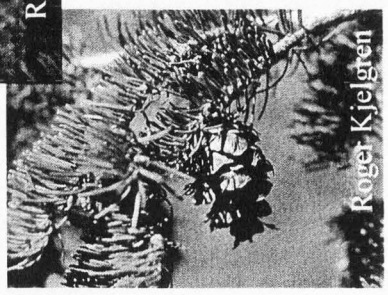
HARDINESS ZONES: 2-5
WATER USE: low to medium-high (14-45" yr.)
ESTABLISHMENT: moderate watering, mulch
GROWTH RATE: moderate
BEST USE: screen, windbreak
WILDLIFE VALUE: squirrels, birds
COMPANION PLANTS: see appendix A

Comments

Although not a true fir, Douglas fir is commercially valuable and used for high quality lumber and plywood. Cultivars include: 'Fastigiata' (upright), 'Fletcheri' (6' dwarf), var. *glauca* (blue-green needles), and 'Pendula' (weeping). This tree grows well in native mountain sites, but needs adequate moisture in Utah's valleys.



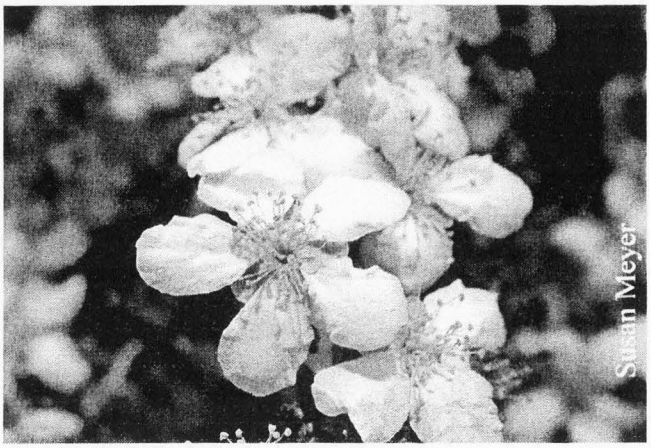




Purshia mexicana

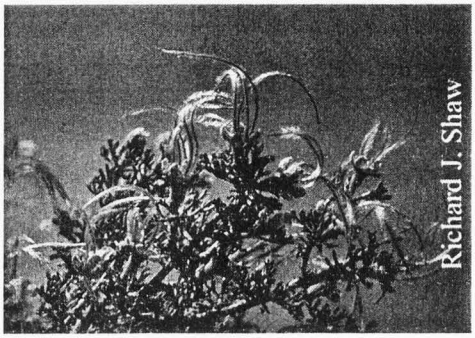
Cliffrose

Rosaceae-Rose family



Appearance

SIZE: grows to 5' tall and 3-4' wide
FORM: stiff irregular branching; narrow crown; shrub to small tree
ROOTS: deep, spreading
LEAVES: small (¼-½" long), 3-5 lobed, deeply incised, close to branch, glandular above; persist for 2 years; fine to medium texture, gray green, aromatic
FLOWER: 1" roselike, creamy white; April, very fragrant
FRUIT: loose head of achenes with 2" long, white hairy plumes; summer-fall
BARK: reddish-gray, shreddy
WINTER: striking branching pattern; evergreen



Natural Habitat

HABITAT AND RANGE: NV to CO, south to NV and CA
ELEVATION: 3500-9000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub
SOIL: rocky to coarse, pH 7.0-8.0, deep, dry, well-drained
EXPOSURE/ASPECT: sun; all, south at higher elevations

Landscape Use

HARDINESS ZONES: 4-7
WATER USE: xeric to low (6-18" yr.)
ESTABLISHMENT: dry sites, do not over-water
GROWTH RATE: slow
BEST USE: ornamental shrub with spring bloom, hedge, difficult places, naturalized areas
WILDLIFE VALUE: deer browse, birds
COMPANION PLANTS: see appendix A

Comments

Cliffrose is drought resistant and tough with showy spring flowers and interesting fruit. It is also tolerant of pruning.

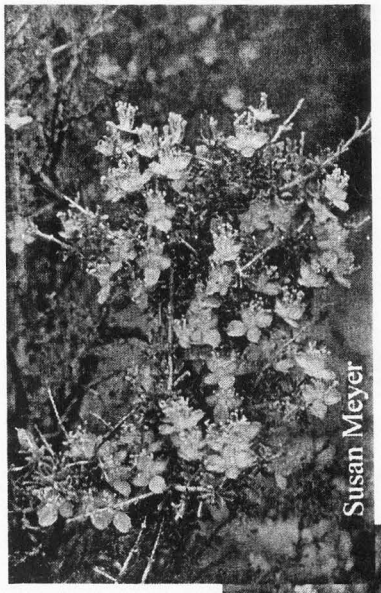
Purshia tridentata

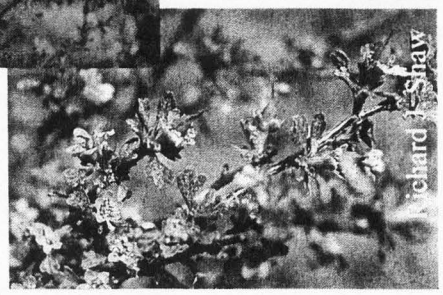
Antelope Bitterbrush

Rosaceae-Rose family

Appearance

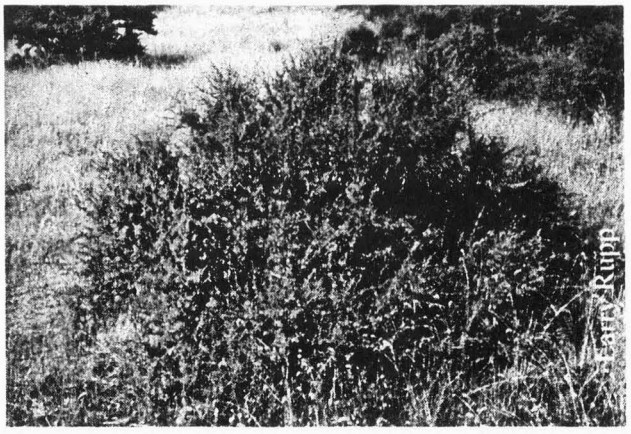
SIZE: grows 6-8' tall and 2-6' wide
FORM: shrub, irregular due to browsing
ROOTS: fibrous, spreading
LEAVES: ¼-1" long, aromatic, three-lobed, thickened, wedge-shaped, hairy; fine texture, gray green turning brown in fall
FLOWER: small (½"), yellow; profuse in spring
FRUIT: inconspicuous papery achene; early to mid-summer
BARK: shreddy, twisted, brownish gray
WINTER: stemmy desert shrub





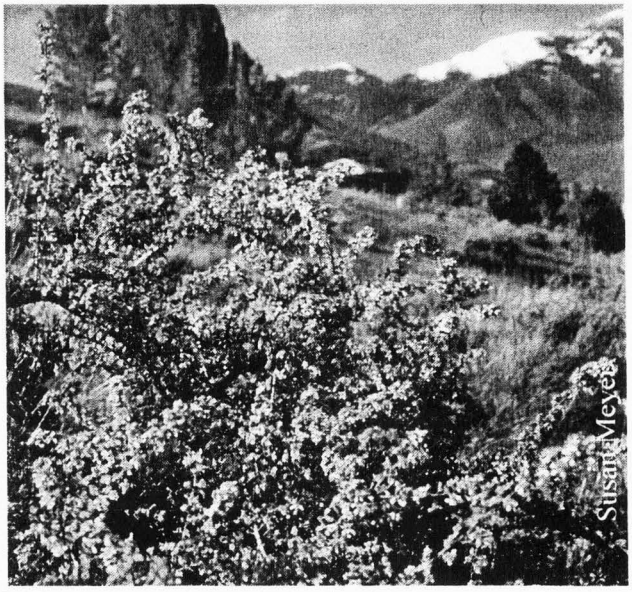
Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4000-9100'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: rocky, pH 6.0-7.0, moderate to deep (20-60"), well-drained, dry
EXPOSURE/ASPECT: sun; south or flat



Landscape Use

HARDINESS ZONES: 3-6
WATER USE: xeric to low (10-20" yr.)
ESTABLISHMENT: minimal watering
GROWTH RATE: moderate to slow
BEST USE: ornamental shrub, hedge
WILDLIFE VALUE: excellent deer browse, rodents, birds
COMPANION PLANTS: see appendix A



Comments

Antelope bitterbrush makes a fine small ornamental for dry places. Deer hedging may reduce bloom, as plants flower on second-year wood.

Quercus gambelii

Gambel Oak

Fagaceae-Beech family

Appearance

SIZE: grows 15-25' tall and 15-20' wide
FORM: shrubs or small trees; sometimes in dense thickets; irregular crown
ROOTS: deep, wide-spreading, rhizomatous
LEAVES: 2-5" long, margin with 7-9 rounded lobes; coarse, dark green and glabrous above, pale and hairy beneath; orange-yellow or reddish brown in fall
FLOWER: light green, inconspicuous
FRUIT: annual acorn, sweet, ½" diameter
BARK: rough, furrowed, gray
WINTER: interesting branch pattern, stout twigs

Natural Habitat

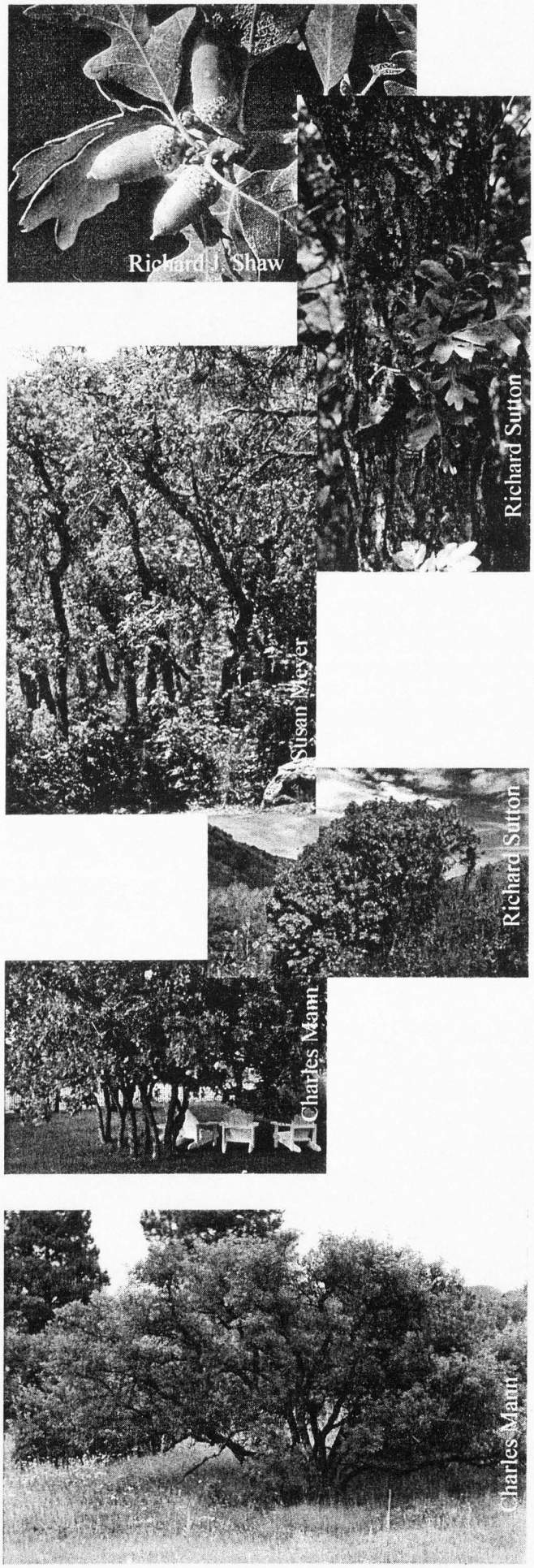
HABITAT AND RANGE: NV to WY, south to NM and AZ
ELEVATION: 3700-9000'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe
SOIL: coarse, pH 7.0-7.5, deep, dry to moist, well-drained
EXPOSURE/ASPECT: sun; all, south and west at higher elevations

Landscape Use

HARDINESS ZONES: 4-8
WATER USE: low to medium (12-25" yr.)
ESTABLISHMENT: minimal watering
GROWTH RATE: slow
BEST USE: small tree, background, tough, dry sites
WILDLIFE VALUE: rodents, browse for deer
COMPANION PLANTS: see appendix A

Comments

Gambel oak is very picturesque, coarse, and informal. It grows naturally in clumps forming dense pure stands on fairly dry lower mountain slopes. It reproduces vigorously from root sprouts after a fire or other disturbance and should be thinned around buildings to reduce fuel. The Utah native oaks hybridize readily. Gambel/bur oak (*Q. macrocarpa*) hybrids are available through some nurseries. The turban oak (*Q. turbinella*), is evergreen and hardy in northern Utah. It is a much branched shrub that seldom exceeds 8 feet in height, growing naturally in dense thickets. Its name, *turbinella*, refers to the turban shape of the acorn. The wavyleaf oak (*Q. undulata*) is a semi-deciduous shrub that forms large clones and is restricted to southeastern Utah.



Rhus glabra

Smooth Sumac

Anacardiaceae-Cashew family

Appearance

SIZE: grows 3-5' tall and 3-4' wide
FORM: erect, few-branched shrub; forms patches
ROOTS: shallow, runnering
LEAVES: 9-17 leaflets (2" long), lanceolate, minutely serrate; coarse to medium texture, green above, whitish below turning scarlet in autumn
FLOWER: green, small, in panicles
FRUIT: red, hairy, berry-like, in head; year-round
BARK: gray, rough at leaf scars
WINTER: coarse, scraggly trunks

Natural Habitat

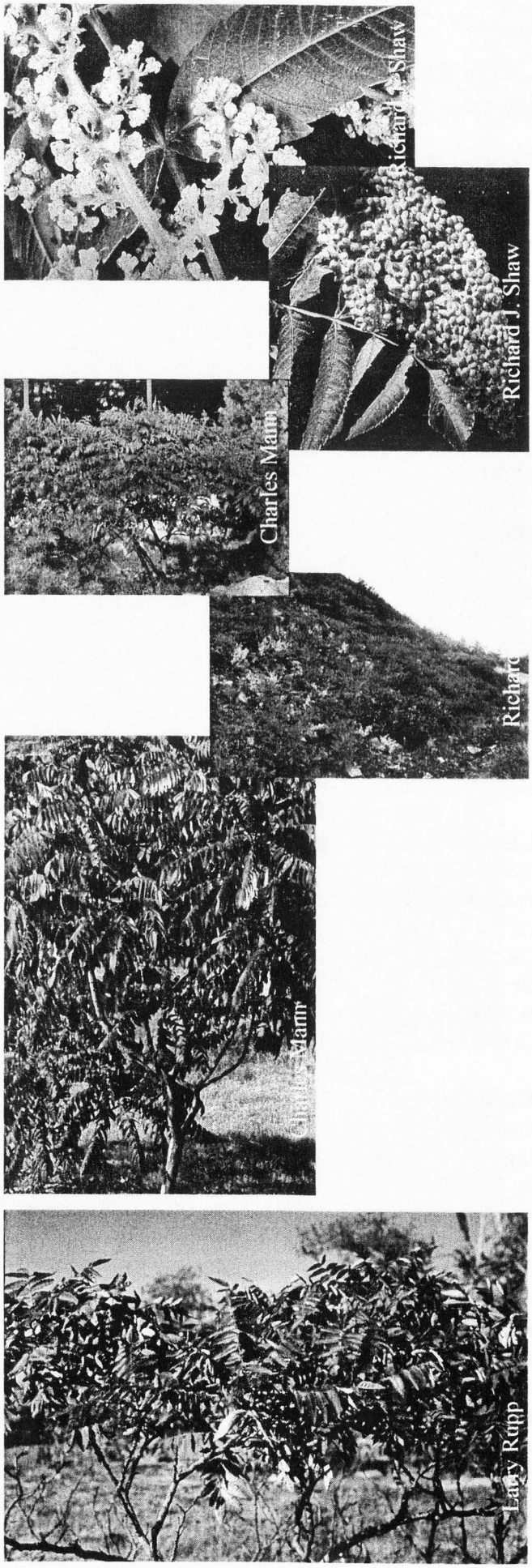
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 3600-7500'
PLANT ASSOCIATION: mid-montane, mountain brush, mixed desert scrub, riparian shrub
SOIL: coarse, pH 6.5-7.0, shallow to moderate, dry to moist, well-drained
EXPOSURE/ASPECT: sun; south, west, or flat

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium (10-14" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: rapid
BEST USE: ornamental shrub, fine fall color accent, soil stabilization, dry and natural gardens
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

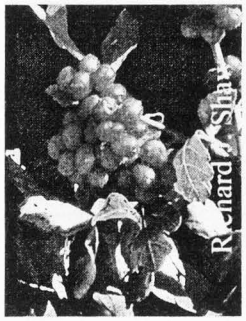
Smooth sumac has great fall color and fruits persist for winter interest. It also suckers freely and colonizes nicely. It will grow larger (5' x 8') under irrigation in rich soil.



Rhus trilobata

Oakbrush Sumac

Anacardiaceae-Cashew family



Appearance

SIZE: grows 3-4' tall and 5-6' wide
FORM: round top, multi-branched, diffuse
ROOTS: spreading fibrous
LEAVES: small (1-1½"), 3-lobed, aromatic; medium to fine texture, green turning golden orange or bright red to purple in fall
FLOWER: inconspicuous, yellow
FRUIT: crimson drupe, year-round
BARK: heavily pubescent, aromatic
WINTER: greenish, round-topped

Natural Habitat

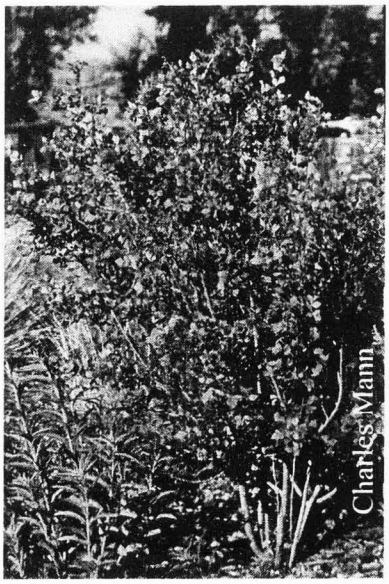
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 3000-7800'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, mixed desert scrub, riparian shrub
SOIL: medium to coarse, pH 6.5-7.5, deep, well-drained, moist or dry
EXPOSURE/ASPECT: full sun to part shade; south

Landscape Use

HARDINESS ZONES: 4-7
WATER USE: xeric to low (8-19" yr.)
ESTABLISHMENT: water first season, then adaptable
GROWTH RATE: moderate to fast
BEST USE: ornamental shrub, mass background, erosion control, naturalized areas
WILDLIFE VALUE: cover and food for birds, secondary deer browse
COMPANION PLANTS: see appendix A

Comments

Oakbrush sumac is a choice shrub with good summer and autumn color and a pleasant form. Its stem is used for basket making by Native Americans. A nice shape can be maintained by pruning or mowing to a few inches of ground in early spring/late winter. Be careful of sap as it is incredibly sticky, aromatic, and stains clothing.



Ribes aureum

Golden Currant

Saxifragaceae-Saxifrage family

Appearance

SIZE: grows 4-6' tall and 3-5' wide
FORM: clump; rounded shrub; arching branches
ROOTS: underground suckering
LEAVES: 3-5 lobed, 1½" long, ovate to uniform; fine to medium texture, bright green turning red in fall
FLOWER: 1", yellow in axillary racemes, turn rose; April-May, fragrant
FRUIT: ½" yellow/red/black berry; late summer
BARK: grayish; spineless
WINTER: gray branch masses

Natural Habitat

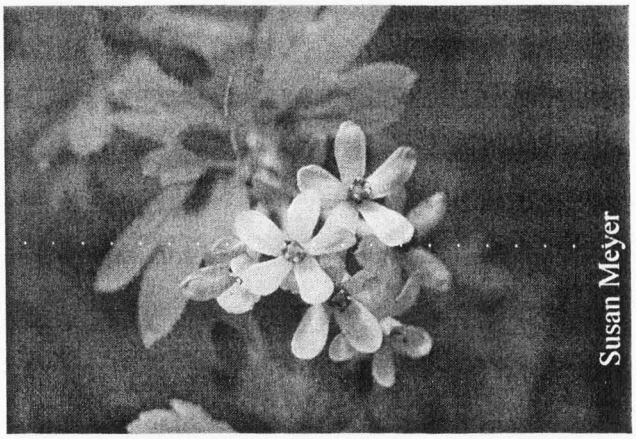
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4400-8500'
PLANT ASSOCIATION: mid-montane, mountain brush, shrub steppe, riparian shrub
SOIL: coarse to medium, pH 6.5-7.0, shallow to deep, moist, organic, well-drained
EXPOSURE/ASPECT: sun or shade; all

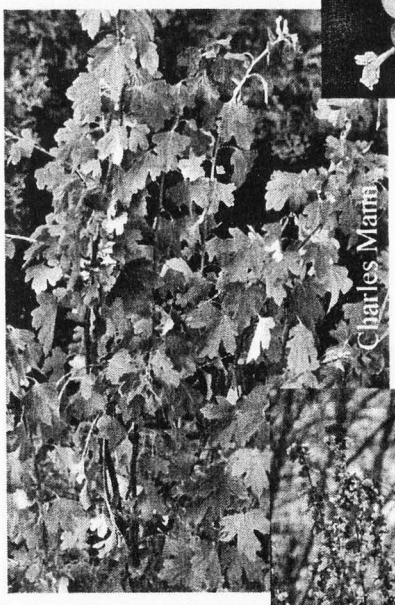
Landscape Use

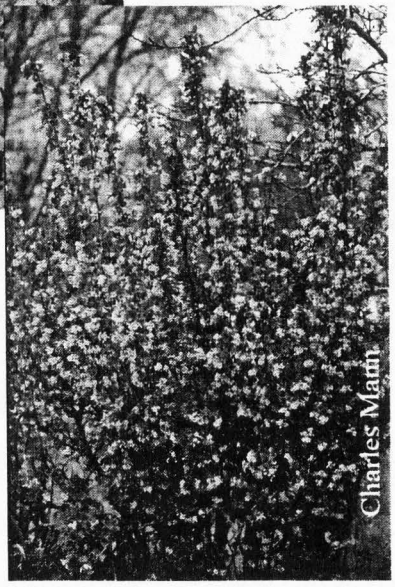
HARDINESS ZONES: 3-6
WATER USE: low to medium (15-20" yr.)
ESTABLISHMENT: performs best under moderate water conditions and partial shade
GROWTH RATE: moderate
BEST USE: coarse screen, spring color accent, wildlife plantings, fruit gardens
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

Golden currant is a reliable, hardy ornamental shrub with spicy-fragrant flowers and good fall color. It requires little maintenance and is not bothered by wind or hail. Other native currants include: the wax currant (*R. cereum*) which is much branching, grows to 4' tall, and has pinkish tubular flowers and red berries; the gooseberry currant (*R. montigenum*) which is a low, bristly shrub that grows on alpine slopes and has a red, bristly berry; and the sticky currant (*R. viscosissimum*) which grows to 3' tall and has 3-7 lobed glandular leaves and black berries.



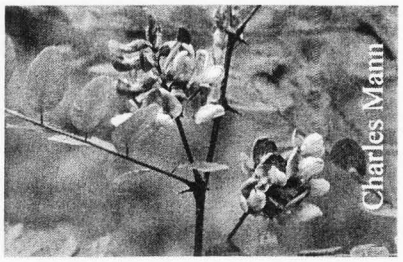




Robinia neomexicana

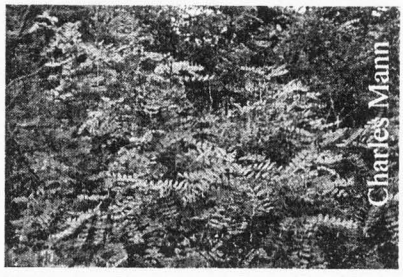
New Mexico Locust

Leguminosae-Legume family



Appearance

SIZE: grows 6-10' tall
FORM: tree or large shrub
ROOTS: branching taproot
LEAVES: once pinnately compound, divided, 9-21 finely hairy leaflets (6-10" long); dark green turning yellow in fall
FLOWER: showy, pale pink to rose, sweetpea-like, born in large, dense droopy clusters; early summer
FRUIT: 3-4" long, hairy brown pods (legume)
BARK: stout, fuzzy, brown with ½-1" long brownish red thorns
WINTER: interesting bark and branching

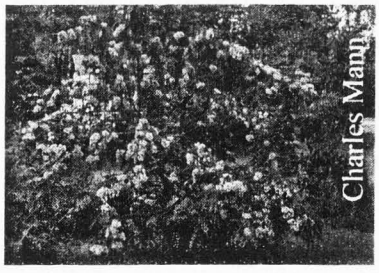


Natural Habitat

HABITAT AND RANGE: talus slopes and terraces, valley bottoms, canyonsides, streambanks; CO, s. UT, NV, AZ, NM, TX, Mexico
ELEVATION: 4000-8500'
PLANT ASSOCIATION: mixed desert scrub, riparian forest, riparian shrub
SOIL: medium to coarse texture
EXPOSURE/ASPECT: sun

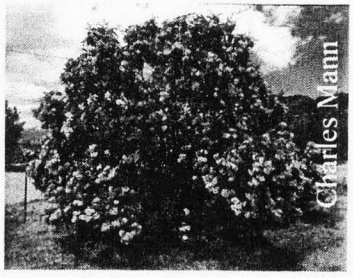
Landscape Use

HARDINESS ZONES: 5-9
WATER USE: low to medium (12-20" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: moderate
BEST USE: naturalized landscapes and tough situations, erosion control
WILDLIFE VALUE: quail and squirrels eat seeds, deer browse
COMPANION PLANTS: see appendix A



Comments

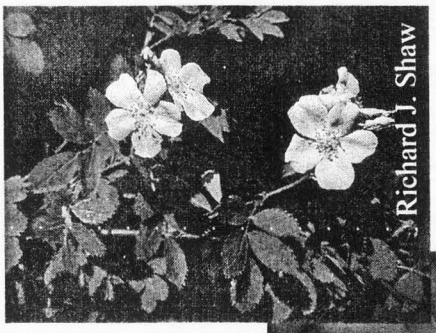
New Mexico locust is a nitrogen fixer, but susceptible to locust borer damage and readily suckers. It hybridizes with the black locust (*R. pseudoacacia*), a cultivated ornamental.

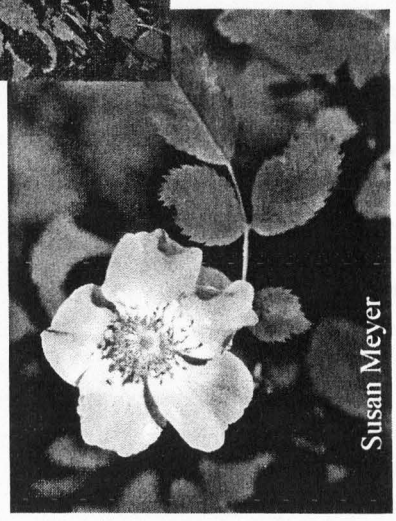


Rosa woodsii

Wood's Rose

Rosaceae-Rose family





Appearance

SIZE: grows 4-6' tall and 3-5' wide
FORM: arching shrub, in clump or thickets
ROOTS: stoloniferous, shallow, spreading
LEAVES: compound, ovate, pointed at tip, serrate margin; thorns only at base; medium texture, dark green turning yellow in fall
FLOWER: 1-2", delicate, pink to reddish; June
FRUIT: dry, red hips; fall, winter
BARK: dark reddish, armed; interesting
WINTER: nice form and color, large red hips

Natural Habitat

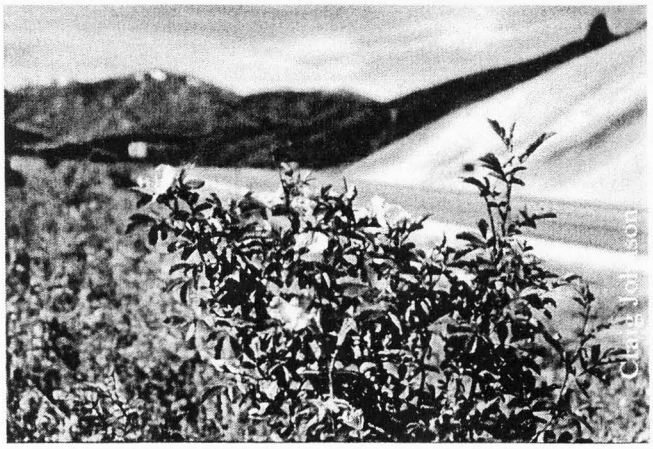
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 2800-11,000'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, riparian shrub
SOIL: medium to coarse, pH 6.0-7.0, shallow to deep, moist or dry, organic, well-drained
EXPOSURE/ASPECT: sun to part shade; all

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium (14-25" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: rapid
BEST USE: barrier, ornamental shrub, erosion control
WILDLIFE VALUE: birds, rodents
COMPANION PLANTS: see appendix A

Comments

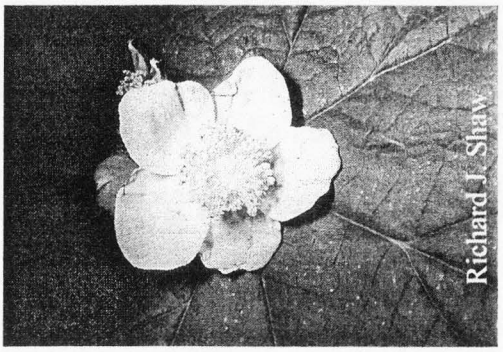
Wood's rose hybridizes and intergrades with other native roses. Give it lots of room, as it's a thicket former and will spread. Nootka rose (*R. nutkana*) is similar in appearance, but has larger (3") solitary flowers and usually grows at higher elevations and moister sites.



Rubus parviflorus

Western Thimbleberry

Rosaceae-Rose family

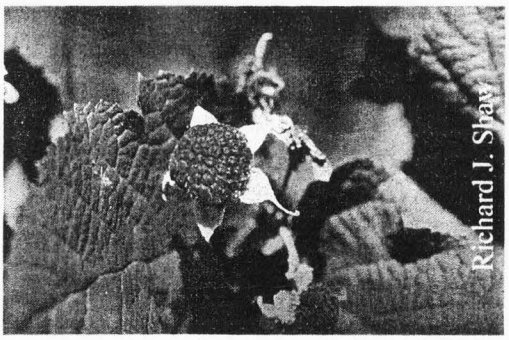


Appearance

SIZE: grows to 4' tall and 3-4' wide
FORM: upright, leggy shrub
ROOTS: stoloniferous, spreading, extensive
LEAVES: 6" long, 5-lobed; coarse texture, light green turning yellow in fall
FLOWER: cymes of 2-9, 1½" white flowers; early summer
FRUIT: a multiple berry on a head, thimble-shaped, reddish, edible; late summer, fall
BARK: shreddy
WINTER: upright stems

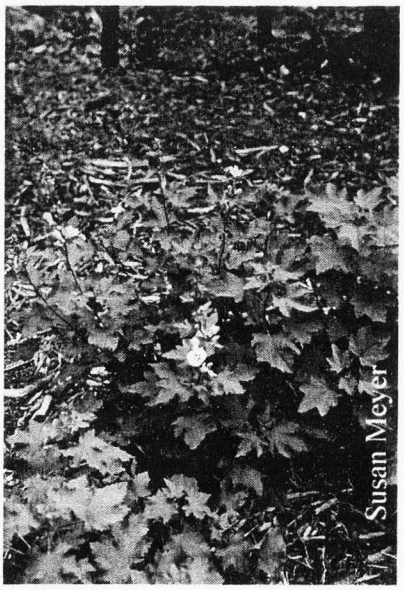
Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4,700-9000'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, riparian shrub
SOIL: medium to coarse, pH 6.0-7.0, shallow, moist, well-drained
EXPOSURE/ASPECT: shade; all, north at lower elevations



Landscape Use

HARDINESS ZONES: 3-5
WATER USE: medium
ESTABLISHMENT: occasional deep soaking
GROWTH RATE: rapid
BEST USE: ground cover, in mass, can be trained along a fence
WILDLIFE VALUE: birds, rodents, bear
COMPANION PLANTS: see appendix A



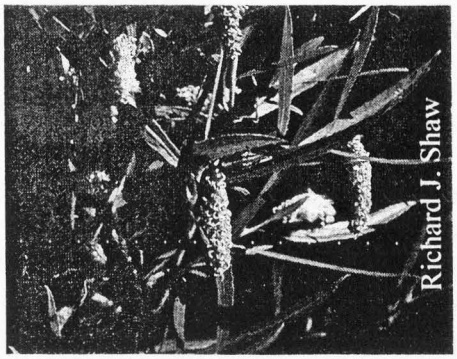
Comments

Western thimbleberry is an exceptional plant with beautiful, large leaves, useful fruit, and interesting flower. It is related to raspberries. The new growth may die back and the plant spreads by suckering.

Salix amygdaloides

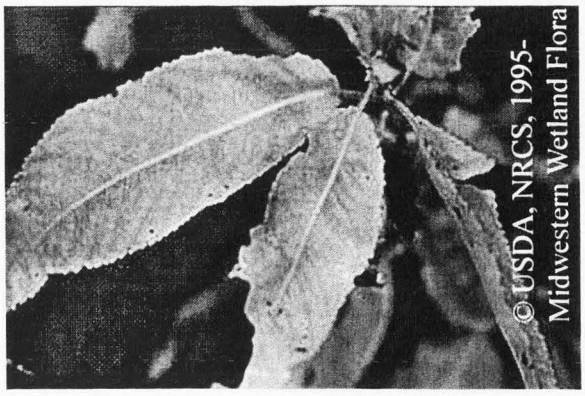
Peachleaf willow

Salicaceae-Willow Family



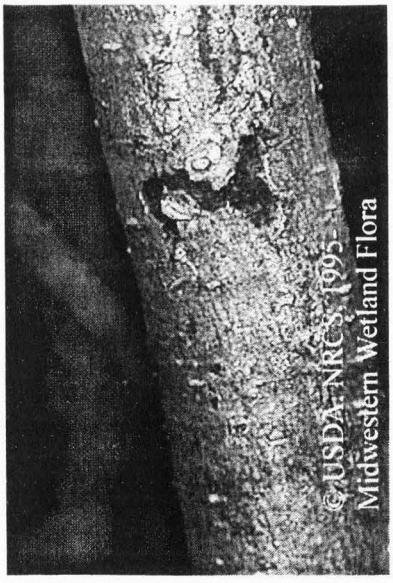
Appearance

SIZE: grows 12-30' tall and wide
FORM: small tree, often multi-trunked
ROOTS: deep, branching taproot
LEAVES: 1-4" long, ½-¾" wide, peachlike; medium texture, yellowish green
FLOWER: catkins, 2½" long
FRUIT: inconspicuous
BARK: thin and smooth when young, gray and furrowed with age
WINTER: high crown with ascending branches



Natural Habitat

HABITAT AND RANGE: stream banks and abandoned fields; s. Canada and widespread within the U.S., except south
ELEVATION: 3500-5500'
PLANT ASSOCIATION: riparian forest, riparian shrub
SOIL: moist, well-drained
EXPOSURE/ASPECT: full sun to part shade

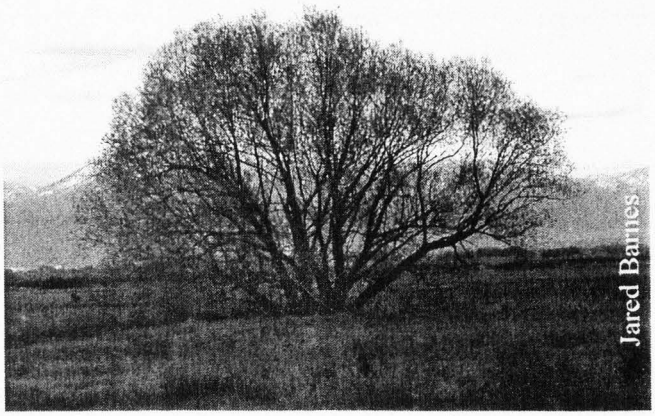


Landscape Use

HARDINESS ZONES: 3-6
WATER USE: medium to high
ESTABLISHMENT: easy, plenty of water
GROWTH RATE: fast
BEST USE: streambank stabilization
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

The peachleaf willow is generally shrubby or a small tree and is only recommended for sites well suited for willows or where native plants are a high priority. Most willows in Utah are shrubby and thicket-forming and propagate easily from cuttings (see comments for *Populus fremontii*), which makes them good to use in stream restoration projects. A few worth mentioning include: the sandbar willow (*S. exigua*), the yellow willow (*S. lutea)*, and Bebb's willow (*S. bebbiana*).



Salvia dorrii

Dorr Sage

Labiatae-Mint family

Appearance

SIZE: 1-2½' tall and 2-3' wide
FORM: low-rounded shrub
ROOTS: branching taproot
LEAVES: oval, to 1" long; silver-gray, aromatic
FLOWER: pale blue to purple, ½" long, in showy terminal clusters
FRUIT: inconspicuous
BARK: scurfy, finely pubescent
WINTER: silvery, semi-evergreen

Natural Habitat

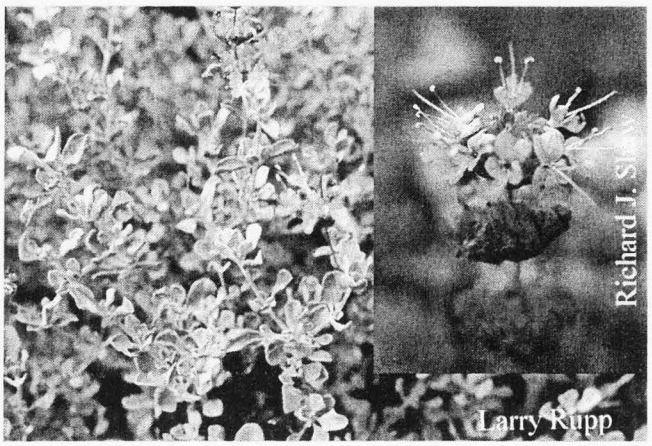
HABITAT AND RANGE: slopes; ID, NV, UT, AZ, CA
ELEVATION: 2700-8500'
PLANT ASSOCIATION: mountain brush, shrub steppe, mixed desert scrub, salt desert scrub
SOIL: sandy or rocky
EXPOSURE/ASPECT: full sun; south or west

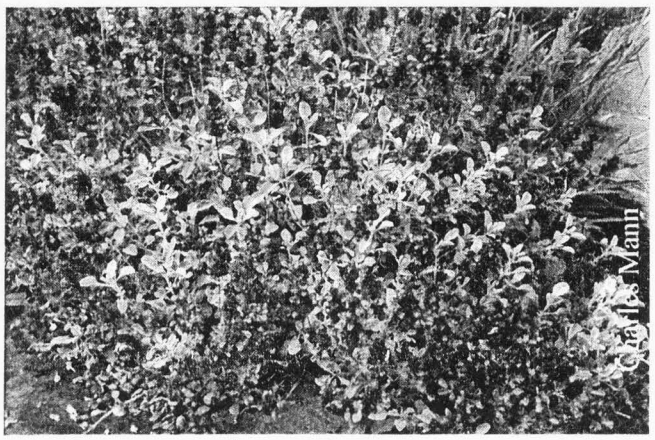
Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low
ESTABLISHMENT: minimum watering
GROWTH RATE: moderate to fast
BEST USE: accent plant, low hedge
WILDLIFE VALUE: bees and butterflies
COMPANION PLANTS: see appendix A

Comments

Dorr sage is a true sage (genus *Salvia*) and is related to the cultivated sage used in cooking. When it blooms, it is stunningly beautiful!





Sambucus caerulea

Blue Elderberry

Caprifoliaceae-Honeysuckle family

Appearance

SIZE: grows 6-10' tall and 5-8' wide
FORM: shrub or small tree
ROOTS: fibrous, spreading
LEAVES: pinnately compound, 5-9 leaflets (1-6" long), lanceolate; medium to coarse texture, yellow-green turning purple to brown in autumn
FLOWER: small, yellow-white, in flat-topped cymes, effective; April-July
FRUIT: small blue-black drupe in cymes, effective; September; juicy, edible
BARK: brown with some red, thin, scaly
WINTER: not outstanding

Natural Habitat

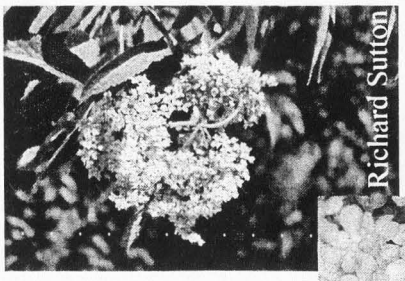
HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 4500-9200'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush, riparian shrub
SOIL: medium to coarse, pH 7.0, deep, moist to dry, organic, well-drained
EXPOSURE/ASPECT: sun to part shade; all, except south at lower elevations

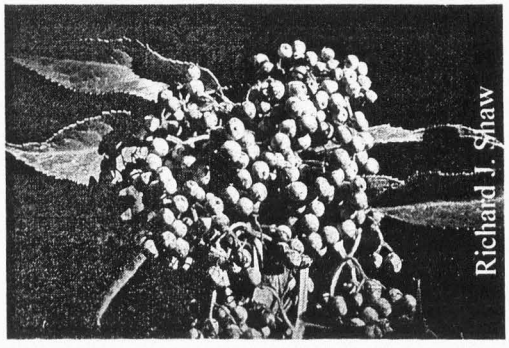
Landscape Use

HARDINESS ZONES: 4-8
WATER USE: low to medium (14-25" yr.)
ESTABLISHMENT: good with moderate watering
GROWTH RATE: rapid
BEST USE: ornamental shrub, accent or in mass, native landscape
WILDLIFE VALUE: birds, deer
COMPANION PLANTS: see appendix A

Comments

Blue elderberry has an interesting fruit and its berries are excellent for wine, jellies, jams, and pies. It is fairly short-lived and likes protected sites, but give plenty of room to grow. Older canes should be pruned out for best results. Its relative, the red elderberry (*S. racemosa*) has red fruit and is native to higher elevation sites in Utah, but always occurs as a shrub.





Shepherdia argentea

Silver Buffaloberry

Eleagnaceae-Oleaster family

Appearance

SIZE: grows 6-12' tall and 6-10' wide
FORM: tall shrub, thicket forming
ROOTS: suckering
LEAVES: 2", oblong, entire; medium texture, silver turning brown in autumn
FLOWER: inconspicuous
FRUIT: small, round, golden or red berry; attractive; July-August
BARK: silver when young, thorny twigs
WINTER: much branched

Natural Habitat

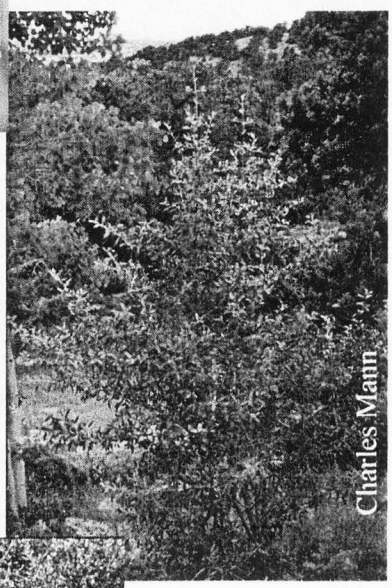
HABITAT AND RANGE: streamsides; WA to MT, south to NM and CA
ELEVATION: 4500-7500'
PLANT ASSOCIATION: mid-montane, riparian shrub
SOIL: medium to coarse or fine, pH 7.0-8.0, deep, moist, well-drained
EXPOSURE/ASPECT: sun; all

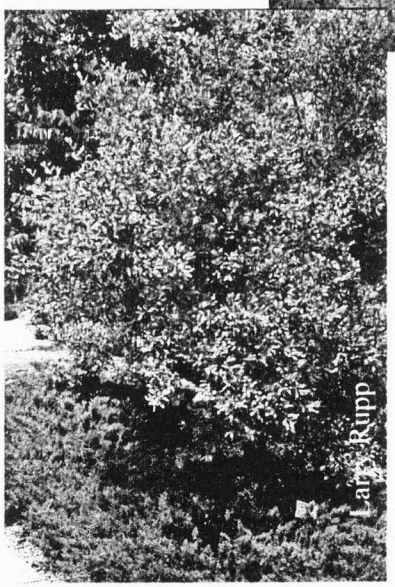
Landscape Use

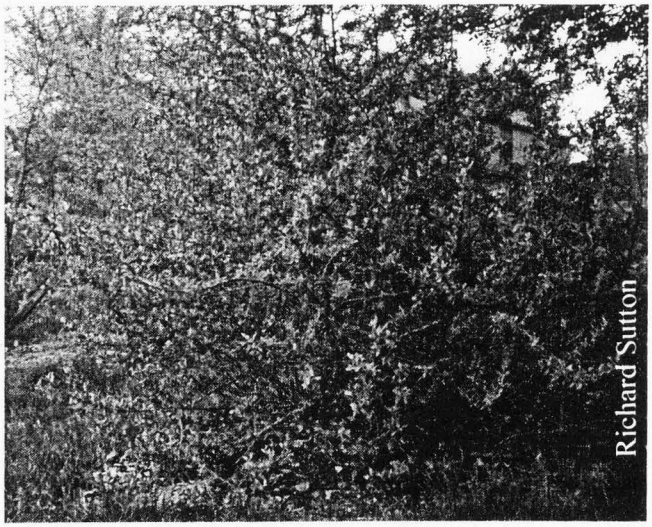
HARDINESS ZONES: 3-6
WATER USE: low to medium (12-20" yr.)
ESTABLISHMENT: moderate watering during the first years
GROWTH RATE: rapid
BEST USE: barrier, color contrast, wildlife planting, erosion control
WILDLIFE VALUE: birds
COMPANION PLANTS: see appendix A

Comments

Silver buffaloberry can withstand wet and heavy soils. It is quite thorny and uncomfortable to prune. Plant it in areas where there won't need much maintenance, not near sidewalks.







Shepherdia rotundifolia

Roundleaf Buffaloberry

Eleagnaceae-Oleaster family

Appearance

SIZE: grows 3-6' tall and 3-12' wide
FORM: shrub
ROOTS: branching taproot
LEAVES: rounded and thick, covered with scales, cupped downward, wooly underneath; silvery to olive green
FLOWER: gray-green, tiny; May to June
FRUIT: small, olive-shaped, scaly, and silvery wooly
BARK: green and wooly
WINTER: evergreen, stunning

Natural Habitat

HABITAT AND RANGE: hillsides and bases of cliffs; n. AZ, s. UT
ELEVATION: 5000-8000'
PLANT ASSOCIATION: mid-montane, mixed desert scrub, salt desert scrub
SOIL: rocky, very well-drained
EXPOSURE/ASPECT: sun

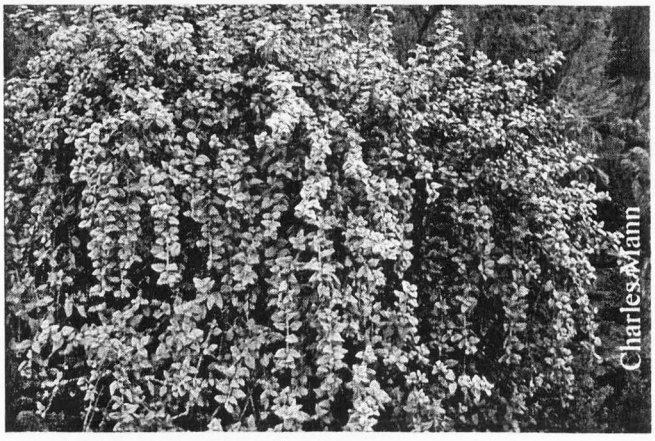
Landscape Use

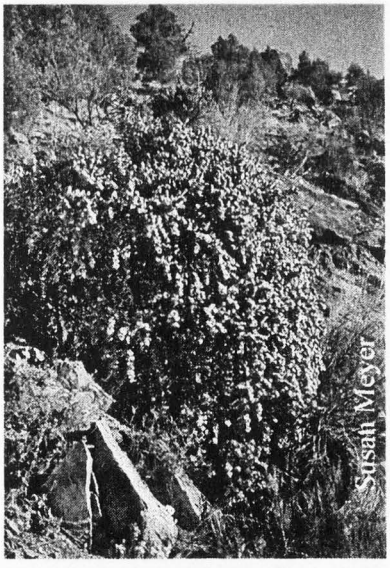
HARDINESS ZONES: 5-9
WATER USE: low
ESTABLISHMENT: difficult; do not overwater, plant in coarse soil on slope

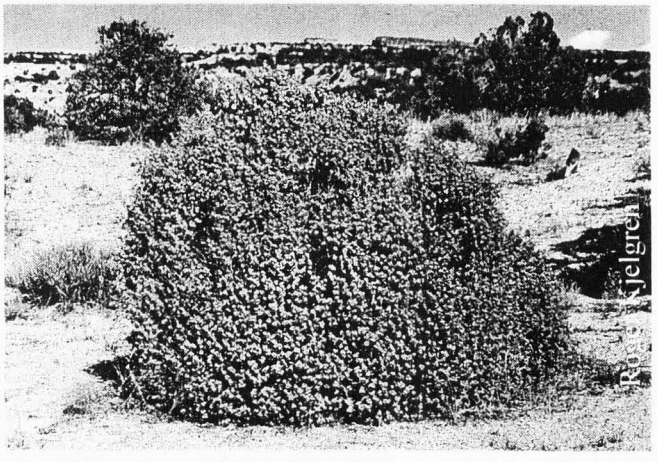
GROWTH RATE: moderate
BEST USE: accent plant
WILDLIFE VALUE: quail, catbirds, thrashers, bears, chipmunks, and ground squirrels eat berries
COMPANION PLANTS: see appendix A

Comments

Roundleaf buffaloberry has a wonderful winter appearance. Its relative, the russet buffaloberry (*S. canadensis*) grows 5-10 feet tall in the open woods where the soil remains fairly moist. It has attractive leaves and berries.



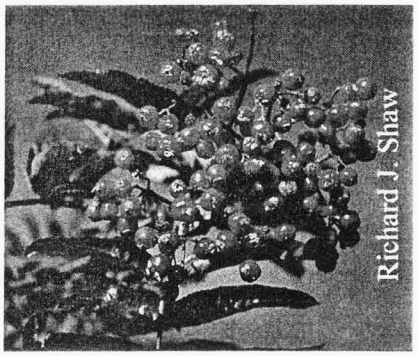




Sorbus scopulina

Mountain Ash

Rosaceae-Rose family

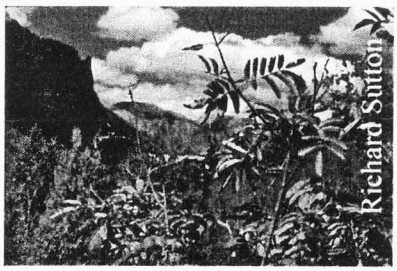


Appearance

SIZE: grows 8-10' tall and 6-8' wide
FORM: semi-erect shrub, branching from base; small tree, or thicket-forming
ROOTS: underground suckers, heavy, layering
LEAVES: 1" leaflets, pinnately compound, serrate; medium texture, green turning showy red-orange in fall
FLOWER: ¼" white flower in large racemes; showy, fragrant; June
FRUIT: 3-4" heads of red-orange berries; very showy; September-November
BARK: yellow brown in youth; dark brown-gray; smooth, thin in age
WINTER: some showy fruit left on in winter

Natural Habitat

HABITAT AND RANGE: WA to MT, south to NM and CA
ELEVATION: 6800-9500'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: medium to coarse, pH 6.0-7.0, deep, moist, organic, well-drained
EXPOSURE/ASPECT: sun to part shade; all, north at lower elevations



Landscape Use

HARDINESS ZONES: 2-5
WATER USE: medium
ESTABLISHMENT: needs irrigation
GROWTH RATE: moderate
BEST USE: showy shrub or small tree for shade or semi-shade; accent; mass in background
WILDLIFE VALUE: food for birds, small mammals
COMPANION PLANTS: see appendix A

Comments

Mountain ash has blossoms and fruit that closely resemble those of the cultivated European mountain ash (*S. aucuparia*). Unlike it's European relative, it never grows very large but does make a nice ornamental shrub with colorful fall fruit.

Symphoriocarpos oreophilus

Mountain Snowberry

Caprifoliaceae-Honeysuckle family

Appearance

SIZE: grows 2-5' tall and 3-5' wide
FORM: small shrub; nicely shaped
ROOTS: stoloniferous, fibrous
LEAVES: small, smooth, thin, oval, opposite, sessile; fine texture, green or gray-green turning brown in autumn
FLOWER: 1/2" white-pink, small; June-July
FRUIT: white berrylike drupe; fall, attractive
BARK: pubescent
WINTER: finely branched twigs

Natural Habitat

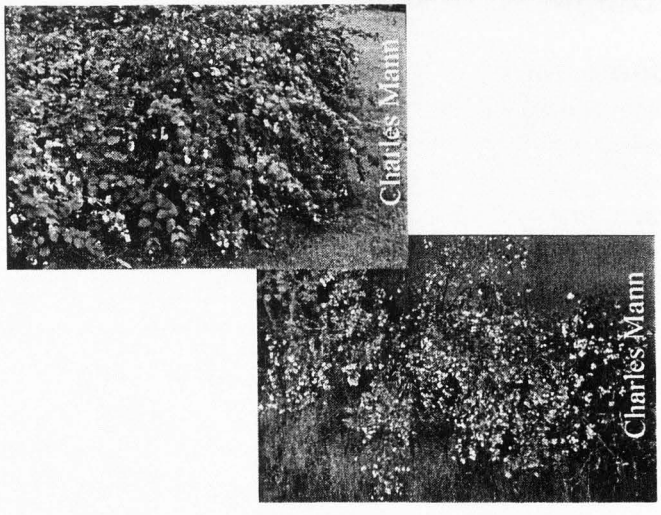
HABITAT AND RANGE: OR to WY, south to NM and CA
ELEVATION: 4500-10,800'
PLANT ASSOCIATION: subalpine, mid-montane, mountain brush
SOIL: medium texture, pH 7.0, moderate depth, moist or dry, well-drained
EXPOSURE/ASPECT: full sun to part shade; all, north at lower elevations

Landscape Use

HARDINESS ZONES: 3-6
WATER USE: low to medium (13-25" yr.)
ESTABLISHMENT: moderate watering
GROWTH RATE: moderate
BEST USE: specimen or in mass, erosion control
WILDLIFE VALUE: birds, rodents, deer browse
COMPANION PLANTS: see appendix A

Comments

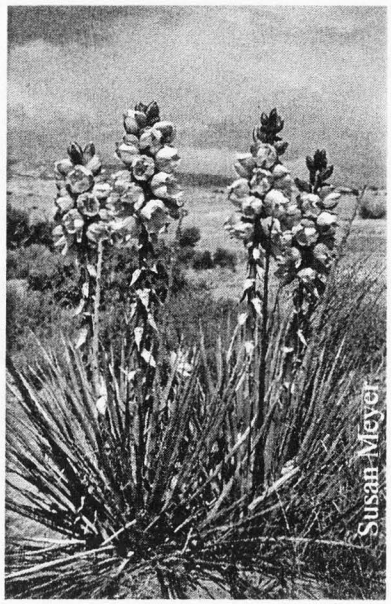
Mountain snowberry needs plenty of room since it will spread. A related species, the canyon snowberry (*S. longiflorus*) is a more drought tolerant shrub with fragrant flowers.



Yucca harrimaniae

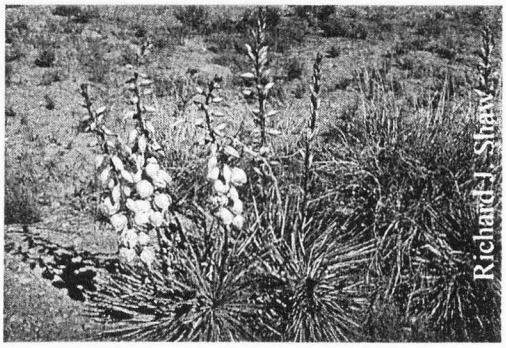
Harriman Yucca

Agavaceae-Agave family



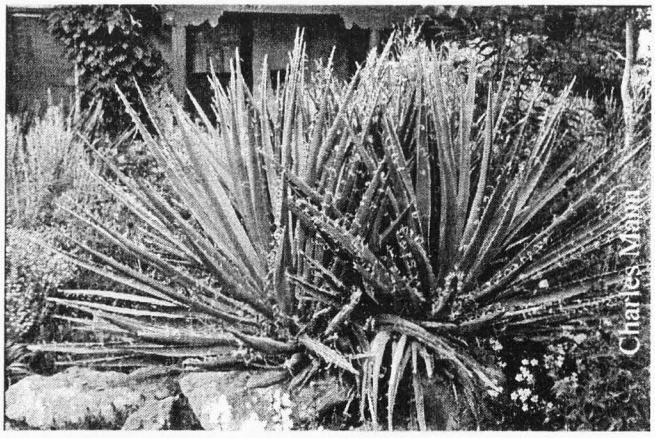
Appearance

SIZE: grows to 3' tall and wide, blossom spikes to 5' tall
FORM: acaulescent, forming dense small clumps of 1-22 rosettes
ROOTS: woody taproot
LEAVES: straight, narrow and tapering to a point, thick and rigid, ½-1½' long; pale green
FLOWER: cream bell shaped flower, tinged with purple, on tall raceme
FRUIT: cylindric capsule
BARK: succulent
WINTER: evergreen



Natural Habitat

HABITAT AND RANGE: NV, UT, CO, AZ, NM
ELEVATION: 4000-9000'
PLANT ASSOCIATION: mountain brush, shrub steppe, mixed desert scrub, grass/forb
SOIL: sandy, well-drained
EXPOSURE/ASPECT: sun; all



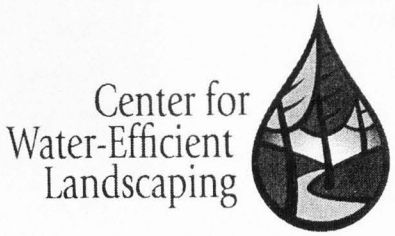
Landscape Use

HARDINESS ZONES: 4-8
WATER USE: xeric to low
ESTABLISHMENT: occasional deep soaking

GROWTH RATE: moderate
BEST USE: accent or specimen, hot and dry areas
WILDLIFE VALUE: birds, small mammals, moths
COMPANION PLANTS: see appendix A

Comments

Since the leaves have sharp tips, use yuccas away from high traffic areas such as sidewalks and driveways. Native Americans and pioneers once used the leaves to make coarse rope. There are several related species in Utah including: the Utah century plant (*Agave utahensis*); the banana yucca (*Y. baccatta*) which grows on dry plains and slopes from 4500-8000' and has a fat, banana-like fruit and broad stiff leaves; and the narrowleaf yucca (*Yucca angustissima*) which grows on dry mesas and slopes from 2700-7500' and has dry, erect seed pods and very narrow leaves.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APPENDICES

APPENDIX A. UTAH NATIVE TREES AND SHRUBS WITH THEIR PLANT ASSOCIATION

Key
p = montane parkland
c = montane coniferous forest
a = aspen forest
m = montane meadow
r = rocky outcropping
w = wet
d = dry
x = all

Botanical Name	PLANT ASSOCIATIONS								
	Subalpine	Mid-Montane (p,c,a,m,r)	Mountain Brush (w,d)	Shrub Steppe	Mixed Desert Scrub	Salt Desert Scrub	Lowland Grass/Forb	Riparian Forest (w,d)	Riparian Shrub (w,d)
Abies concolor	x	c							
Acer grandidentatum		c	x	x					
Amelanchier utahensis		p	d	x					
Arctostaphylos patula		p	d						
Arctostaphylos uva-ursi	x	p							
Artemisia cana		m	x	x					
Artemisia nova		x	d	x	x				
Artemisia tridentata	x	p	d	x	x				
Atriplex canescens		p	d		x	x			
Atriplex confertifolia		p			x	x			
Betula occidentalis		a						w	x
Ceanothus martini	x	x	x						
Celtis reticulata			x	x	x				
Ceratoides lanata		x	x	x	x				
Cercocarpus ledifolius		p,r	d	x					
Cercocarpus montanus		p	d	x					
Chamaebatiaria millefolium		p	d		x				
Chilopsis linearis									d
Chrysothamnus nauseosus		p	d	x	x	x			
Clematis ligusticifolia								x	x
Cornus sericea								w	w
Crataegus douglasii								x	w
Ephedra viridis		p	d	x	x	x			
Eriogonum corymbosum		x	x	x	x	x			
Fallugia paradoxa		p	d		x				
Forestiera neomexicana									x
Fraxinus anomala		p	d		x				
Holodiscus dumosus	x	p	d	x	x				
Jamesia americana	x	r	d						
Juniperus communis	x	c,a							
Juniperus osteosperma		p	d	x	x				
Juniperus scopulorum		p,a	d	x					
Lonicera involucrata	x	c,a,m							x
Mahonia fremontii		p	d		x	x			
Mahonia repens	x	c,a	x						x

Key
p = montane parkland
c = montane coniferous forest
a = aspen forest
m = montane meadow
r = rocky outcropping
w = wet
d = dry
x = all

Botanical Name	PLANT ASSOCIATIONS								
	Subalpine	Mid-Montane (p,c,a,m,r)	Mountain Brush (w,d)	Shrub Steppe	Mixed Desert Scrub	Salt Desert Scrub	Lowland Grass/Forb	Riparian Forest (w,d)	Riparian Shrub (w,d)
Pachystima myrsinites	x	c,a	x				x		
Peraphyllum ramosissimum		p	x		x				
Petrophytum caespitosum	x	r	d						
Philadelphus microphyllus	x	p,c,a	x						
Physocarpus malvaceus	x	c,a	w						w
Picea pungens	x	c						x	
Pinus edulis		p	d	x					
Pinus flexilis	x	r	d						
Pinus longaeva	x	r							
Pinus ponderosa		p	d						
Populus fremontii								x	
Populus tremuloides	x	x						x	
Potentilla fruticosa	x	m	x	x			x		
Prunus americana			x						x
Prunus virginiana		p,a	x						x
Pseudotsuga menziesii	x	p,c	x						
Purshia mexicana		p	d	x	x				
Purshia tridentata		p	d	x					
Quercus gambelii		p	d	x					
Rhus glabra		x	x		x				x
Rhus trilobata		x	x	x	x				x
Ribes aureum		p,c,a	x	x					x
Robinia neomexicana					x			x	x
Rosa woodsii	x	c,a,m	x						d
Rubus parviflorus	x	c,a	w						x
Salix amygdaloides								x	x
Salvia dorrii			d	x	x	x			
Sambucus caerulea	x	p,c,a	w						x
Shepherdia argentea		m							x
Shepherdia rotundifolia		p,r			x	x			
Sorbus scopulina	x	a	w						
Symphoriocarpos oreophilus	x	p,c,a	x						
Yucca harrimaniae			x	x	x		x		

APPENDIX B. CALCULATED AVERAGE PRECIPITATION IN INCHES FOR 1971-2000 BY COUNTY AND WEATHER STATION

Calculated Average Precipitation in Inches for 1971-2000 by County and Weather Station

Data Provided by the Utah Climate Center, Utah State University (http://climate.usu.edu)

COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Beaver	BEAVER	0.83	0.73	1.29	1.23	1.05	0.52	1.14	1.57	1.06	1.07	0.93	0.78	12.2
Beaver	BEAVER CANYON POWERHOUSE	1.86	1.84	2.69	1.95	1.79	0.95	1.65	2.06	1.47	1.83	1.62	1.57	21.26
Beaver	MILFORD	0.67	0.76	1.2	0.96	0.91	0.45	0.78	1.02	0.97	1.11	0.74	0.61	10.17
Beaver	MINERSVILLE	0.84	0.89	1.56	1.17	1.04	0.59	1.1	1.46	1.13	1.29	0.89	0.83	12.78
Beaver	WAH WAH RANCH	0.36	0.33	0.6	0.6	0.76	0.38	0.63	0.96	0.8	0.75	0.5	0.21	6.87
Box Elder	BEAR RIVER REFUGE	1.15	1.07	1.52	1.56	1.66	0.75	0.81	0.98	1.59	1.93	0.98	1.2	15.2
Box Elder	BRIGHAM CITY	2.4	1.45	2.62	2.33	0.7	1.5	0.03	0.98	1.95	3.09	2.7	3.1	22.85
Box Elder	BRIGHAM CITY WASTE PLANT	1.8	1.52	1.77	1.89	2.36	1.13	0.96	0.89	1.51	1.82	1.49	1.34	18.48
Box Elder	CORINNE	1.53	1.51	1.81	1.81	2.15	1.11	0.84	0.86	1.59	1.69	1.48	1.45	17.84
Box Elder	CUTLER DAM UP&L	1.62	1.59	1.78	1.54	2.61	1.24	1.01	0.82	1.47	1.67	1.61	1.37	18.32
Box Elder	GARLAND 1 NE	1.55	1.37	1.49	1.96	1.55	1.08	0.6	1.3	1.47	1.79	1.08	1.28	16.53
Box Elder	GROUSE CREEK	1	0.89	0.88	1.02	1.52	1.04	0.91	0.65	0.79	0.86	1	0.98	11.55
Box Elder	LUCIN	0.39	0.63	1.14	0.63	0.69	0.74	0.72	0.91	0.94	0.64	0.53	0.51	8.47
Box Elder	MIDLAKE	1	0.57	1.2	0.75	1.26	0.69	0.44	0.57	0.69	0.58	0.9	0.44	9.08
Box Elder	PARK VALLEY	0.93	0.83	1.03	1.03	1.65	0.95	1.16	1.05	0.78	1.2	0.88	0.79	12.29
Box Elder	PARK VALLEY MUDDY RANCH	1.2	0.88	0.68	0.85	0.88	0.68	0.91	0.71	0.48	0.68	0.77	0.79	9.5
Box Elder	PLYMOUTH	1.51	1.42	1.38	1.21	2.36	0.93	0.78	0.71	0.88	0.94	1.08	0.79	14
Box Elder	PROMONTORY	0.61	0.79	1.02	1.21	1.35	0.66	0.58	0.59	1.36	1.39	1.03	0.72	11.3
Box Elder	ROSETTE	1.39	1.19	0.98	1.04	1.74	1.38	0.97	0.87	0.9	0.81	0.52	0.93	12.71
Box Elder	SNOWVILLE	0.98	0.84	1.24	1.28	1.82	0.86	0.92	0.77	0.96	1.07	1.13	1.09	12.95
Box Elder	THIOKOL PLANT 78	1.18	1.15	1.3	1.32	1.99	1.13	0.87	0.86	1.19	1.35	1.2	0.96	14.5
Box Elder	TREMONTON	1.75	1.56	1.69	1.48	2.53	1.17	1.24	0.83	1.36	1.54	1.3	1.35	17.81
Box Elder	UTAH TEST RANGE	0.92	1.11	0.86	1.34	1.23	1.09	0.51	0.29	0.73	0.99	0.74	0.48	10.3
Cache	HARDWARE RANCH	1.49	1.37	1.72	1.51	1.9	0.94	1.01	1	1.59	1.78	1.61	1.57	17.49
Cache	LEWISTON	1.36	1.17	1.38	2.37	1.3	1.13	0.55	0.67	1.29	2.28	1.16	1.23	15.9
Cache	LOGAN 5 SW EXP FARM	1.67	1.7	1.86	1.96	2.2	1.26	0.88	0.94	1.35	1.88	1.55	1.49	18.74
Cache	LOGAN RADIO KVNU	1.34	1.42	1.86	1.98	2.11	1.26	0.88	0.93	1.55	1.76	1.38	1.35	17.84
Cache	LOGAN USU EXPERIMENT STN	1.37	1.51	2.05	1.98	2.32	1.34	1.06	0.88	1.56	1.88	1.47	1.64	19.06
Cache	LOGAN UTAH STATE UNIV	1.56	1.61	2.15	2.12	2.39	1.34	0.98	0.95	1.55	2.06	1.57	1.6	19.86
Cache	RICHMOND	1.68	1.67	2.19	2.22	2.61	1.29	0.95	1.06	1.45	2.02	1.64	1.6	20.38
Cache	TRENTON	1.72	1.75	2	1.91	2.68	1.17	0.92	1.02	1.32	1.6	1.38	1.51	18.98
Carbon	HELPER CARBON UP&L	1.29	1.39	1.49	1.18	1.18	0.64	1.16	1.42	1.82	1.72	1.02	0.73	15.04
Carbon	HIAWATHA	0.98	1.1	1.32	0.97	1.45	0.63	1.52	1.3	1.51	1.34	1.11	0.87	14.1
Carbon	PRICE WAREHOUSES	0.78	0.8	0.78	0.59	0.81	0.52	0.89	1.05	1.14	1.38	0.64	0.51	9.89
Carbon	SCOFIELD	1.64	1.52	1.78	1.41	1.66	0.62	0.92	1.35	1.35	1.54	1.6	1.68	17.09
Carbon	SCOFIELD DAM	0.94	0.94	1.07	0.83	1.04	0.72	1.15	1.39	1.28	1.31	1.04	0.85	12.57
Carbon	SCOFIELD-SKYLINE MINE	2.86	3.14	2.55	2.17	1.86	1.41	1.43	1.52	2	1.9	2.45	2.04	25.32

Calculated Average Precipitation in Inches for 1971-2000 by County and Weather Station

Data Provided by the Utah Climate Center, Utah State University (http://climate.usu.edu)

COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
Carbon	SUNNYSIDE	0.76	0.91	1.4	1.14	1.32	0.71	1.61	1.37	1.77	1.67	1.08	0.83	14.57
Carbon	SUNNYSIDE CITY CENTER	0.96	1.09	0.93	1.29	1.45	0.76	1.26	1.21	1.72	1.48	0.56	0.44	13.15
Carbon	WELLINGTON 3 E	0.6	0.59	0.78	0.8	0.88	0.48	0.89	1.06	1.44	0.86	0.59	0.45	9.41
Daggett	ALLEN'S RANCH	0.32	0.45	0.76	0.99	1.23	0.73	0.73	0.71	8.07	1.04	0.5	0.44	15.96
Daggett	FLAMING GORGE	0.51	0.53	1.08	1.63	1.72	1.08	1.1	1.22	1.12	1.36	0.85	0.59	12.79
Davis	ANTELOPE ISLAND	0.76	1.07	0.8	2.54	0.67	0.48	0.08	2.1	1.55	3.16	0.78	3.92	17.91
Davis	BOUNTIFUL-VAL VERDA	1.99	2.01	2.46	2.69	3.22	1.29	0.96	0.98	1.8	2.22	2.09	1.88	23.6
Davis	FARMINGTON USU FIELD STN	2.2	2.08	2.61	2.68	2.98	1.26	0.92	0.88	1.6	2.15	2.03	1.9	23.3
Davis	WEBER BASIN PUMP PLANT 3	2.61	2.46	2.88	2.95	3.17	1.47	1.02	1.14	1.74	2.4	2.22	2.27	26.34
Duchesne	ALTAMONT	0.7	0.65	0.65	0.72	1.01	0.72	0.88	0.86	1.06	1.06	0.65	0.55	9.51
Duchesne	DUCHESNE	0.54	0.59	0.65	0.99	1.08	0.74	1.05	1.44	1.28	1.1	0.54	0.57	10.57
Duchesne	DUCHESNE AIRPORT	0.75	0.52	0.62	0.43	1.07	0.48	0.63	0.99	0.57	0.7	0.64	0.17	7.57
Duchesne	FRUITLAND 1 ENE	1.11	0.57	0.54	0.22	0.95	0.33	1.46	1.22	0.99	0.63	0.88	0.78	9.67
Duchesne	HANNA	0.87	1.27	1.01	0.72	1.19	0.83	1.14	1.08	1.11	1.4	0.8	0.8	12.22
Duchesne	MYTON	0.33	0.32	0.48	0.72	0.93	0.55	0.61	0.72	0.79	0.88	0.39	0.24	6.99
Duchesne	NEOLA	0.58	0.55	0.64	0.81	1.19	0.68	0.72	0.86	1.09	1.18	0.61	0.43	9.33
Duchesne	NUTTERS RANCH	0.48	0.42	1.29	0.85	1.03	0.43	1.11	1.15	1.04	1.36	0.76	0.56	10.49
Duchesne	TABIONA 1 SE	1.02	0.86	0.9	0.57	0.63	0.78	1.52	1.22	3.24	1.1	0.48	0.98	13.3
Emery	CASTLE DALE	0.64	0.57	0.68	0.52	0.65	0.41	0.81	0.97	0.86	0.9	0.53	0.38	7.93
Emery	CASTLE DALE HUNTER UP&L	0.51	0.57	0.66	0.54	0.56	0.41	0.75	1.24	1.26	0.95	0.41	0.39	8.24
Emery	ELECTRIC LAKE UP&L	2.85	2.82	2.79	2.34	2.2	1.23	1.25	1.65	2.01	1.98	2.41	2.34	25.87
Emery	EMERY	0.57	0.6	0.32	0.33	0.79	0.45	1.06	0.62	0.45	1.39	0.34	0.25	7.17
Emery	FERRON	0.67	0.64	0.73	0.51	0.75	0.41	1.04	0.97	1.02	0.98	0.57	0.4	8.69
Emery	GREEN RIVER AVIATION	0.51	0.43	0.67	0.59	0.63	0.34	0.76	0.69	0.73	1.01	0.46	0.32	7.14
Emery	HUNTINGTON FARM UP&L	1.17	0.44	1.46	0.35	0.41	0.44	1.09	1.51	3.01	1.44	0.41	1.06	12.78
Garfield	ANTIMONY	0.11	0.25	0.1	0.25	0.31	0.61	0.84	1.05	0.66	1.13	0.39	0.43	6.13
Garfield	BOULDER	0.99	0.91	1.02	0.49	0.77	0.33	1.06	1.5	1.23	1.21	0.79	0.61	10.9
Garfield	BRYCE CANYON FAA AIRPORT	1.04	1.37	1.41	0.71	0.98	0.54	0.86	1.66	1.5	1.82	1.24	0.79	13.92
Garfield	BRYCE CANYON NATL PARK	0.86	1.33	1.58	0.87	1.28	0.82	1	1.27	1.15	1.89	1.77	1.41	15.24
Garfield	BRYCE CANYON NATL PARK HQ	1.5	1.67	1.6	0.84	1.07	0.6	1.43	2.23	1.65	1.7	1.2	0.94	16.43
Garfield	ESCALANTE	0.9	0.81	0.92	0.49	0.65	0.37	0.76	1.52	1.12	1.16	0.77	0.54	10.01
Garfield	HATCH	0.82	1.09	1.2	0.72	0.89	0.53	1.28	1.69	1.21	1.31	1	0.7	12.44
Garfield	HENRIEVILLE	0.74	0.87	1.08	0.66	0.65	0.37	0.61	0.92	0.63	1.59	1.23	0.67	10.02
Garfield	PANGUITCH	0.58	0.66	0.74	0.61	0.76	0.53	1.18	1.86	0.98	1.03	0.69	0.4	10.04
Garfield	SANDY RANCH	0.29	0.4	0.78	0.5	0.41	0.36	0.81	1.03	0.56	2.14	0.66	0.48	8.42
Garfield	SHIFTING SANDS RANCH	0.59	0.79	0.76	0.2	0.61	0.14	1.12	1	0.67	0.4	0.33	0.29	6.89
Garfield	TROPIC	0.94	1.09	1.12	0.7	0.68	0.46	1.08	1.53	1.29	1.36	1	0.92	12.16

Calculated Average Precipitation in Inches for 1971-2000 by County and Weather Station

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COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
Garfield	WIDTSOE 3 NNE	0.65	0.65	0.94	0.64	0.89	0.49	1.27	1.68	1.25	1.19	0.58	0.39	10.63
Grand	ARCHES NATIONAL PARK HQ	0.58	0.44	0.85	0.84	0.74	0.42	0.86	0.97	0.77	1.32	0.66	0.46	8.92
Grand	CASTLE VALLEY INSTITUTE	0.72	0.76	1.2	1.04	1.15	0.39	0.91	0.83	0.97	1.53	1.12	0.69	11.29
Grand	CASTLETON	0.67	0.56	1.01	1.09	1.22	0.82	1.31	0.94	0.55	2.2	1.22	0.83	12.43
Grand	DEWEY	0.81	0.63	0.91	0.77	0.93	0.43	0.66	0.63	0.71	1.39	0.91	0.69	9.46
Grand	MOAB	0.67	0.52	0.9	0.97	0.83	0.37	0.89	0.83	0.75	1.26	0.75	0.64	9.37
Grand	THOMPSON	0.94	0.53	1.06	0.8	1	0.34	0.78	0.84	0.98	1.27	0.72	0.66	9.92
Iron	BLOWHARD MOUNTAIN RADAR	2.83	3.14	4.35	2.59	1.77	0.73	2.15	2.93	1.65	2.07	2.24	2.31	28.76
Iron	BRIAN HEAD	4.44	4.58	4.18	3.63	1.59	1.33	1.66	3.14	2.51	3.1	2.84	2.87	35.86
Iron	CEDAR CITY 5 E	1.09	1.39	2.06	1.62	1.05	0.64	1.62	1.67	1.05	1.35	1.45	0.99	15.99
Iron	CEDAR CITY FAA AIRPORT	0.9	0.97	1.32	0.99	0.89	0.49	0.93	1.12	0.84	1.31	0.98	0.65	11.4
Iron	CEDAR CITY STEAM PLANT	0.98	1.19	1.96	1.2	1.2	0.38	1.05	1.46	1.29	1.5	1.17	0.87	14.24
Iron	ENTERPRISE BERYL JUNCTION	0.76	0.9	1.35	0.81	0.84	0.5	1.02	1.1	0.93	1.01	0.85	0.59	10.66
Iron	MODENA	0.88	0.98	1.16	0.8	0.82	0.38	1.14	1.24	1.06	1.27	0.76	0.5	11
Iron	PAROWAN POWER PLANT	0.97	1.1	1.4	1.29	0.96	0.5	1.09	1.5	0.98	1.38	1.13	0.8	13.1
Iron	SUMMIT	1.05	1.17	1.4	1.18	0.91	0.44	1.1	1.33	0.98	1.38	1.11	0.85	12.9
Juab	CALLAO	0.41	0.35	0.45	0.52	0.95	0.53	0.53	0.65	0.55	0.75	0.36	0.22	6.26
Juab	EUREKA	1.66	1.95	2.32	1.77	1.72	0.83	1.29	1.46	1.41	1.74	1.65	1.32	19.13
Juab	FISH SPRINGS REFUGE	0.47	0.52	0.86	1.01	1.1	0.56	0.49	0.64	0.76	0.87	0.59	0.32	8.19
Juab	LEVAN	1.37	1.37	1.64	1.49	1.63	0.8	0.79	0.83	1.22	1.58	1.21	1.12	15.07
Juab	LITTLE SAHARA DUNES	0.95	1.06	1.24	1.18	1.63	0.73	0.78	0.85	1.15	1.22	0.78	0.49	12.06
Juab	NEPHI	1.31	1.36	1.76	1.57	1.6	0.82	0.85	1	1.16	1.55	1.41	1.14	15.53
Juab	PARTOUN	0.5	0.48	0.6	0.73	1.05	0.54	0.62	0.63	0.7	0.75	0.46	0.26	7.32
Kane	ALTON	1.81	1.9	1.83	0.95	0.97	0.5	1.34	1.62	1.53	1.59	1.4	1.23	16.67
Kane	BIG WATER	0.56	0.68	0.65	0.49	0.37	0.15	0.58	0.79	0.72	0.9	0.43	0.29	6.62
Kane	BULLFROG BASIN	0.58	0.35	0.62	0.35	0.37	0.15	0.41	0.52	0.69	1.04	0.66	0.46	6.21
Kane	CHURCH WELLS	0.97	0.57	0.72	0.36	0.58	0.09	0.92	0.99	0.88	0.42	0.72	0.52	7.74
Kane	GLEN CANYON CITY	0.11	0.41	0.67	0.17	0.28	0.34	0.18	1.05	0.4	3	0.98	0.74	8.32
Kane	KANAB	1.86	1.73	1.91	0.95	0.68	0.4	1.05	1.45	1.36	1.35	1.21	1.01	14.96
Kane	KODACHROME BASIN PARK	1.11	1.28	1.16	0.72	0.72	0.39	1.04	1.74	1.4	1.26	0.76	0.65	12.24
Kane	ORDERVILLE	1.82	1.91	2.05	0.98	0.89	0.58	1.15	1.65	1.15	1.27	1.21	1.09	15.76
Kane	PARIA RANGER STATION	0.19	0.61	0.6	0.74	0.19	0.23	1.13	1.11	0.87	1.84	0.4	0.19	8.09
Millard	BLACK ROCK	0.57	0.56	1.09	0.91	1.01	0.49	0.71	0.91	0.86	0.96	0.74	0.5	9.32
Millard	CLEAR LAKE REFUGE	0.57	0.56	1.02	0.92	1.07	0.39	0.49	0.77	0.86	1.25	0.73	0.54	9.16
Millard	COVE FORT	1.03	1.35	1.85	1.83	1.08	0.34	1.2	1.01	0.79	1.39	1.13	1.22	14.22
Millard	DELTA	0.6	0.65	0.85	0.82	0.96	0.48	0.56	0.64	0.78	1.01	0.61	0.43	8.38
Millard	DELTA 32 SSW	0.2	0.27	1.07	0.27	0.48	0.39	0.28	0.38	0.75	0.4	0.79	0.12	5.37

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COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
Millard	DESERET	0.67	0.63	0.76	0.86	1.11	0.46	0.57	0.68	0.81	1	0.74	0.48	8.77
Millard	DESERT EXPERIMENT RANGE	0.32	0.27	0.73	0.54	0.8	0.24	0.77	1.15	0.78	0.71	0.36	0.22	6.9
Millard	ESKDALE	0.3	0.38	0.68	0.59	0.84	0.6	0.58	0.59	0.76	0.71	0.4	0.17	6.59
Millard	FILLMORE	1.42	1.39	1.98	1.82	1.72	0.7	0.78	0.86	1.09	1.68	1.5	1.22	16.16
Millard	GARRISON	0.37	0.56	0.97	0.76	0.85	0.37	0.74	0.82	0.91	1	0.6	0.27	8.22
Millard	KANOSH	1.42	1.31	1.9	1.81	1.58	0.67	0.89	1.12	1.05	1.59	1.51	1.26	16.11
Millard	OAK CITY	1.24	1.23	1.55	1.54	1.58	0.79	0.5	0.77	1.07	1.55	1.3	1.05	14.17
Millard	SCIPIO	1.29	1.37	1.27	1.26	1.39	0.7	0.88	1.14	1.12	1.54	1.35	1.04	14.36
Millard	SEVIER DRY LAKE	0.51	0.39	1.05	0.46	0.78	0.56	0.38	0.75	0.65	0.89	0.46	0.36	7.25
Morgan	MORGAN	1.85	1.77	1.87	2.08	1.98	1.1	0.73	0.79	1.55	1.7	1.88	1.59	18.9
Piute	ANGLE	0.48	0.38	0.76	0.72	0.87	0.67	0.93	1.46	1.15	0.92	0.43	0.3	9.1
Piute	CIRCLEVILLE	0.62	0.54	0.76	0.64	0.9	0.57	0.86	1.42	0.95	0.9	0.5	0.43	9.08
Piute	MARYSVALE	0.6	0.53	0.78	0.62	0.76	0.44	0.77	0.99	0.8	0.87	0.6	0.44	8.21
Piute	OTTER CREEK DAM	0.21	0.31	0.6	0.42	1.01	0.17	1.05	1.33	1.12	0.49	0.25	0.18	7.15
Rich	BEAR LAKE STATE PARK	1.83	1.31	1.17	1.54	1.95	1.47	0.63	0.83	0.86	1.25	1.36	1.16	15.37
Rich	LAKETOWN	1.07	0.91	1.14	1.29	1.44	1.11	0.85	0.92	1.22	1.27	1.12	1.03	13.38
Rich	RANDOLPH	0.75	0.89	0.8	1.26	1.74	1.26	1	1.23	1.68	1.08	1.06	0.73	13.47
Rich	WOODRUFF	0.54	0.5	0.63	0.94	1.21	0.99	0.79	0.83	1.24	1.06	0.67	0.45	9.85
Salt Lake	ALTA	6.28	6.08	6.92	5.51	4.3	1.98	1.78	1.96	2.81	4.28	5.83	6.29	54.02
Salt Lake	ASR RESEARCH LAB	1.06	1.01	1.53	2.26	1.52	0.58	0.7	0.61	1.24	1.56	1.3	1.08	14.44
Salt Lake	BINGHAM CANYON	1.4	1.9	1.81	3.47	1.33	1.28	0.72	0.82	1.75	2.6	2.56	2.8	22.46
Salt Lake	BINGHAM CANYON 2 NE	1.33	1.34	2.5	1.81	2.73	1.1	1.73	1.51	1.94	1.61	1.84	1.57	21.03
Salt Lake	CITY CREEK WATER PLANT	2.82	2.6	3.35	3.4	3.16	1.42	1.01	1.01	2.21	2.64	2.7	2.55	28.87
Salt Lake	COTTONWOOD WEIR	2.04	2.18	2.92	3.03	3.06	1.27	1.11	1.2	2.12	2.63	2.44	1.95	25.95
Salt Lake	DRAPER POINT OF THE MTN	1.91	1.56	1.42	2.07	1.99	0.99	0.84	1.07	0.97	1.55	1.37	0.85	16.59
Salt Lake	GARFIELD	1.34	1.37	1.97	2.22	2.39	0.95	1.03	0.89	1.63	1.98	1.76	1.21	18.74
Salt Lake	HOLLADAY	1.85	1.9	2.41	2.76	2.53	1.04	0.97	0.9	1.64	2.26	1.97	1.78	22
Salt Lake	MOUNTAIN DELL DAM	1.99	1.96	2.52	2.45	2.83	1.39	1.14	1.18	2.14	2.55	2.09	2.05	24.3
Salt Lake	SALT LAKE CITY NWSFO ARPT	1.37	1.33	1.91	2.02	2.09	0.77	0.72	0.76	1.33	1.57	1.4	1.23	16.5
Salt Lake	SALT LAKE CITY ZOO	2.82	2.5	2.45	2.99	3.15	1.7	0.7	0.71	1.22	2.13	2.12	1.78	24.28
Salt Lake	SALT LAKE TRIAD CENTER	1.71	1.86	1.98	2.33	2.55	0.96	0.66	0.58	1.27	1.58	1.79	1.15	18.42
Salt Lake	SALTAIR SALT PLANT	0.78	0.73	1.49	1.68	1.97	0.8	0.84	0.88	1.39	1.59	1.26	0.79	14.21
Salt Lake	SILVER LAKE BRIGHTON	5.06	4.85	5.26	4.12	3.44	1.57	1.64	1.87	2.55	3.65	4.81	4.65	43.48
Salt Lake	TERMINAL	0.81	0.97	0.75	2.6	1.77	0.83	1.34	0.94	1.86	2.85	0.75	0.95	16.43
Salt Lake	UNIVERSITY OF UTAH	1.47	1.59	2.34	2.2	2.48	0.72	0.84	0.86	1.57	2.03	1.67	1.67	19.42
Salt Lake	WHEELER FARM	2.36	2.68	2.89	2.99	1.88	1.5	0.52	0.88	1.1	1.47	1.4	1.31	20.96
San Juan	ANETH PLANT	0.9	0.82	0.85	0.68	0.5	0.23	0.68	0.69	0.67	1.09	0.7	0.75	8.57

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COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
San Juan	BLANDING	1.54	1.11	1.07	0.88	0.8	0.47	1.31	1.23	1.25	1.6	1.11	1	13.37
San Juan	BLUFF	0.87	0.65	0.65	0.5	0.53	0.21	0.76	0.65	0.69	1.04	0.74	0.62	7.91
San Juan	CANYONLANDS-THE NECK	0.56	0.41	0.86	0.81	0.79	0.41	0.97	0.77	0.88	1.29	0.77	0.56	9.08
San Juan	CANYONLANDS-THE NEEDLES	0.58	0.38	0.8	0.72	0.66	0.32	0.87	0.93	0.8	1.17	0.63	0.52	8.39
San Juan	CEDAR POINT	1.5	1.36	1.4	1.08	1.09	0.44	1.34	1.34	1.49	2.07	1.55	1.16	15.81
San Juan	HITE MARINA	0.71	0.28	0.35	0.33	0.39	0.08	0.53	0.3	0.15	1.33	0.51	0.39	5.35
San Juan	HITE RANGER STATION	0.65	0.41	0.85	0.54	0.46	0.32	0.73	0.52	0.92	1.35	0.88	0.6	8.24
San Juan	HOVENWEEP NATL MONUMENT	1.12	1.02	1.19	0.85	0.77	0.32	1.01	0.99	0.97	1.46	1.22	0.9	11.82
San Juan	LA SAL	0.91	0.48	0.69	0.67	0.9	0.91	1.42	1.47	0.89	2.33	0.85	0.77	12.28
San Juan	LA SAL 2 SE	0.93	0.76	1.04	1.01	1.06	0.75	1.46	1.63	1.67	1.78	1.21	0.78	14.06
San Juan	MEXICAN HAT	0.61	0.49	0.55	0.45	0.5	0.19	0.61	0.61	0.66	1	0.53	0.49	6.68
San Juan	MONTICELLO	1.81	1.31	1.2	0.95	1.03	0.64	1.35	1.86	1.54	1.85	1.44	1.29	16.28
San Juan	MONUMENT VALLEY MISSION	0.42	0.46	0.6	0.45	0.56	0.22	1.03	1	0.77	1.01	0.67	0.46	7.63
San Juan	NATURAL BRIDGES NATL MON	1.07	0.75	1.15	0.83	0.81	0.46	1.18	1.48	1.24	1.48	0.97	0.86	12.28
San Juan	NAVAJO MOUNTAIN	0.23	0.08	0.04	0.23	0.12	0.51	0.22	0.97	0.79	2.17	0.49	0.3	6.15
Sanpete	EPHRAIM SORENSENS FIELD	1.01	1.08	1.39	1.14	1.25	0.67	0.76	0.87	1.19	1.34	1.11	0.88	12.7
Sanpete	FAIRVIEW	1.29	1.36	1.56	1.47	1.59	1	0.97	0.9	1.24	1.4	1.38	1.06	15.22
Sanpete	FAIRVIEW 8 N	1.65	1.54	1.63	1.17	1.94	1.06	1.06	1.23	1.59	1.58	1.45	1.21	17.11
Sanpete	GUNNISON	0.77	0.61	1.14	0.95	0.9	0.43	0.5	0.68	0.93	1.05	0.87	0.72	9.54
Sanpete	MANTI	1.08	1.07	1.46	1.31	1.52	0.77	0.79	0.89	1.31	1.43	1.15	0.91	13.68
Sanpete	MORONI	0.95	0.86	0.95	0.71	0.86	0.54	0.73	0.79	0.92	1.05	0.87	0.74	9.98
Sevier	EMERY 15 SW	0.98	0.8	1.97	1.06	1	0.75	1.51	1.54	1.45	1.26	1.25	1.11	14.67
Sevier	FREMONT INDIAN STATE PARK	1.04	0.98	0.9	1.16	1.19	0.86	0.83	1.46	0.91	1.3	0.83	0.65	12.1
Sevier	KOOSHAREM	0.64	0.57	0.78	0.6	0.9	0.56	1.06	1.35	1.01	0.96	0.57	0.52	9.54
Sevier	RICHFIELD RADIO KSVC	0.58	0.51	0.77	0.62	1.04	0.58	0.68	0.73	0.84	0.99	0.65	0.44	8.44
Sevier	SALINA	0.66	0.61	1.19	0.91	1.1	0.49	0.66	0.74	0.95	1.04	0.86	0.61	9.81
Sevier	SALINA 24 E	1.14	1.1	1.19	1.06	1.36	0.82	1.22	1.83	1.68	1.36	1.01	0.79	14.55
Sevier	SIGURD UP&L	0.44	0.54	0.93	0.73	1.24	0.59	0.75	0.82	1.06	1.23	0.76	0.65	9.74
Summit	COALVILLE	1.31	1.22	1.62	1.84	2.02	1.13	1	1.08	1.37	1.61	1.62	1.14	16.95
Summit	COALVILLE 13 E	1.04	0.97	1.47	1.61	2.01	1.13	1.15	0.99	1.62	1.49	1.24	0.86	15.57
Summit	ECHO DAM	1.14	1.03	1.37	1.52	1.97	1.05	0.85	0.8	1.38	1.52	1.56	1.04	15.22
Summit	KAMAS 3 NW	1.59	1.4	1.55	1.54	1.64	0.96	1.08	1.08	1.5	1.7	1.51	1.29	16.83
Summit	PARK CITY FIRE STN 31	2.69	2.22	1.74	1.63	2.63	1.55	1.21	1.33	1.28	1.9	1.99	1.49	21.66
Summit	PARK CITY MEADOWS	2.91	2.84	1.4	0.61	0.07	0	0.82	1.71	0.02	1.23	2.33	0.09	14.03
Summit	PARK CITY NORANDA MINE	1.44	1.27	2.8	2.5	4.79	0.9	0.59	0.92	1.76	3.64	1.57	2.45	24.63
Summit	PARK CITY RADIO	2	1.66	1.44	1.4	1.55	0.98	2.3	1.62	2.39	1.35	1.95	2.13	20.77
Summit	PARK CITY SUMMIT HOUSE	2.65	2.45	2.97	2.66	1.16	0.63	1.02	1.19	1.05	2.5	2.68	3.12	24.07

Calculated Average Precipitation in Inches for 1971-2000 by County and Weather Station

Data Provided by the Utah Climate Center, Utah State University (http://climate.usu.edu)

COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
Summit	SNYDERVILLE	3.25	2.48	2.12	2.25	2.88	1.78	1.64	1.34	1.63	1.9	2.07	1.63	24.96
Summit	UINTALANDS	1.49	1.72	2.8	2.44	2.39	1.19	1.42	1.79	1.8	1.99	2.24	1.58	22.86
Summit	UINTALANDS JACKSON	1.03	0.8	1.44	1.89	1.75	1.85	1.85	0.81	1.86	1.02	1.22	0.22	15.73
Summit	WANSHIP DAM	1.22	1.08	1.5	1.76	2.02	1.01	1.07	1.03	1.47	1.71	1.61	1.04	16.53
Tooele	CALLISTER RANCH	0.68	0.74	1.68	1.61	1.47	0.56	0.71	1.02	1.13	1.24	0.93	0.91	12.67
Tooele	DUGWAY	0.59	0.66	0.95	0.82	1.24	0.5	0.56	0.63	0.73	0.9	0.6	0.5	8.68
Tooele	GOLD HILL	0.71	0.56	1.1	1.26	1.58	0.63	0.83	1.23	1.23	1.06	0.64	0.45	11.3
Tooele	GRANTSVILLE	0.72	0.91	1.34	1.49	1.48	0.65	0.81	0.89	1.11	1.25	1.07	0.77	12.49
Tooele	IBAPAH	0.79	0.67	0.99	1.18	1.41	0.93	0.89	0.77	0.89	1.04	0.54	0.51	10.58
Tooele	JOHNSON PASS	1.53	1.62	1.88	1.62	2.13	1	1.23	1.08	1.3	1.41	1.28	1.33	17.38
Tooele	KNOLLS 10 NE	0.5	0.37	0.66	0.88	0.95	0.61	0.31	0.27	0.48	0.64	0.46	0.34	6.47
Tooele	ROWLEY PUMP STATION	0.58	1.19	1.39	2.02	1.58	0.64	1.48	0	1.76	0.96	1.29	0.57	13.46
Tooele	TOOELE	1.42	1.61	2.49	2.37	2.25	0.96	0.88	0.92	1.52	1.94	1.94	1.46	19.76
Tooele	VERNON	0.73	0.86	1.09	0.86	1.21	0.71	0.84	0.88	0.9	1.11	0.91	0.63	10.73
Tooele	WENDOVER WSO AIRPORT	0.27	0.26	0.41	0.48	0.82	0.38	0.27	0.4	0.43	0.51	0.28	0.17	4.69
Tooele	WEST DESERT PUMP STATION	0.23	0.12	0.59	0.49	1.92	0.15	0.08	0.35	0.21	0.03	0.79	0.36	5.32
Uintah	BONANZA	0.55	0.43	0.79	0.87	1.16	0.56	1.07	0.82	0.84	1.18	0.57	0.42	9.27
Uintah	DINOSAUR NM QUARRY AREA	0.61	0.63	0.74	0.85	1.07	0.53	0.68	0.68	0.96	1.16	0.63	0.51	9.05
Uintah	FORT DUCHESNE	0.36	0.34	0.42	0.55	0.73	0.45	0.55	0.72	0.72	0.95	0.28	0.32	6.39
Uintah	JENSEN	0.54	0.53	0.68	0.82	0.92	0.53	0.68	0.62	0.93	1.13	0.59	0.46	8.44
Uintah	MAESER 9 NW	0.82	1.09	1.17	1.32	1.54	1.34	1.2	1.23	1.79	1.47	1.06	0.72	14.76
Uintah	OURAY 4 NE	0.4	0.33	0.58	0.77	0.81	0.44	0.7	0.75	0.76	0.92	0.48	0.34	7.3
Uintah	PLEASANT GROVE	1.8	1.76	1.87	1.67	1.85	0.9	0.86	0.88	1.32	1.78	1.51	1.44	17.65
Uintah	ROOSEVELT RADIO	0.56	0.44	0.54	0.69	0.89	0.44	0.48	0.66	0.76	1.02	0.47	0.36	7.31
Uintah	VERNAL AIRPORT	0.41	0.5	0.68	0.86	1.05	0.66	0.64	0.74	0.9	1.24	0.57	0.45	8.7
Utah	ALPINE	2.02	1.78	1.97	1.9	2.18	0.9	0.76	1.02	1.38	1.92	1.63	1.73	19.18
Utah	BARTHOLOMEW POWERHOUSE	2.67	2.62	3.11	2.39	2.58	1.12	1	1.25	1.89	2.73	2.89	2.8	27.05
Utah	BIRDSEYE	1.06	1.27	1.25	1.39	0.82	0.99	1.09	1.11	1.01	1.51	1.51	1.27	14.27
Utah	BIRDSEYE NEBO CREEK	1.42	1.41	1.66	0.79	2.19	0.65	0.88	1.41	3.19	2.39	1.11	1.41	18.51
Utah	CONRAD RANCH	2.22	2.28	2.2	1.66	1.71	0.96	1.2	1.18	2	2.33	2.44	2.48	22.65
Utah	ELBERTA	0.81	0.78	1.1	1.06	1.16	0.61	0.89	0.83	1.03	1.2	0.94	0.61	11.03
Utah	FAIRFIELD	1.14	1.17	1.19	1.18	1.29	0.72	1.08	1.09	1.06	1.31	1.05	0.85	13.14
Utah	GENEVA STEEL 2	1.31	1.13	1.33	1.19	1.43	0.36	0.48	0.75	0.78	2.26	1.06	0.84	12.91
Utah	OLMSTEAD POWERHOUSE	2.3	2.07	2.13	1.8	2.52	1.12	0.81	1.09	1.79	2.01	1.95	1.52	21.11
Utah	OREM TREATMENT PLANT	1.22	1.34	1.08	1.33	1.51	0.92	0.67	0.85	1.34	1.36	1.13	0.85	13.61
Utah	PAYSON	1.67	1.71	1.56	1.9	2.19	0.89	0.74	0.61	1.14	1.78	1.78	1.16	17.13
Utah	PAYSON 1 SE	1.63	1.37	2.31	2.17	2.01	0.8	0.71	1.14	1.94	2.31	1.9	1.65	19.92

Calculated Average Precipitation in Inches for 1971-2000 by County and Weather Station

Data Provided by the Utah Climate Center, Utah State University (http://climate.usu.edu)

COUNTY	WEATHER STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG/TOT
Utah	PROVO BYU	2.11	2.03	2.11	1.86	2.25	1.29	0.96	1.25	1.67	2.07	1.85	1.68	21.13
Utah	PROVO RADIO KAYK	0.81	0.88	0.73	1.54	0.85	0.59	0.6	0.63	0.75	1.72	0.62	0.9	10.61
Utah	SANTAQUIN CHLORINATOR	1.53	1.56	1.91	1.99	2.13	0.83	0.74	0.95	1.38	2.06	1.8	1.33	18.22
Utah	SPANISH FORK POWERHOUSE	1.87	2.1	2.35	2.27	2.25	1.09	0.91	1.03	1.52	2.17	2.21	1.78	21.56
Utah	SUNDANCE	11.43	6.68	2.4	3.94	3.71	2.22	1.1	2.53	2.55	2.17	4.33	4.53	47.59
Utah	THISTLE 2 SW	2.17	1.9	2.02	1.29	1.6	0.21	0.66	0.61	0.81	1.06	1.83	1.42	15.59
Utah	TIMPANOGOS CAVE	2.31	2.23	2.91	2.25	3.05	1.48	1.08	1.49	2.04	2.54	2.01	1.97	25.36
Utah	UPPER AMERICAN FORK PWRHS	2.05	2.19	2.66	2.32	2.5	1.13	1.04	1.4	1.89	2.58	1.97	2.22	23.97
Utah	UTAH LAKE LEHI	1.04	1.01	1.12	1.3	1.36	0.64	0.67	0.97	1.17	1.33	1.18	0.7	12.5
Wasatch	CURRANT CREEK JUNCTION	1.51	1.59	1.06	0.89	1.46	0.86	1.29	1.46	1.02	1.78	1.47	0.84	15.23
Wasatch	DEER CREEK DAM	3.12	2.86	2.42	1.76	1.92	1.01	0.91	1.12	1.62	2.09	2.35	2.33	23.51
Wasatch	HEBER	1.86	1.71	1.49	1.29	1.5	0.84	0.83	0.94	1.28	1.6	1.5	1.39	16.21
Wasatch	SNAKE CREEK POWERHOUSE	2.88	2.67	1.92	1.61	1.89	0.91	1.08	1.2	1.51	1.91	2.26	2.33	22.16
Wasatch	SOLDIER CREEK	1.13	0.84	0.7	0.94	1.05	1.44	0.39	1.68	1.04	2.52	1.42	1.94	15.09
Wasatch	SOLDIER SUMMIT	1.23	1.18	1.35	0.91	1.46	0.69	1.07	0.82	0.74	0.92	0.64	1.08	12.09
Washington	ENTERPRISE	1.26	1.8	2.2	1.05	0.98	0.48	0.89	1.06	1.29	1.57	1.28	1.13	15
Washington	GUNLOCK POWERHOUSE	1.71	1.82	2.09	0.86	0.71	0.36	0.79	1.15	0.93	1.23	1.08	0.99	13.74
Washington	LA VERKIN	1.55	1.59	1.76	0.78	0.55	0.28	0.73	1.1	0.9	0.94	1.09	0.79	12.07
Washington	LYTLE RANCH	1.71	2.03	1.74	0.6	0.52	0.35	0.65	0.74	0.8	0.5	0.67	0.39	10.7
Washington	NEW HARMONY	2.04	2.68	2.52	1.1	0.96	0.52	1.25	1.65	1.35	1.56	1.56	1.3	18.48
Washington	ST GEORGE	1.28	1.02	1.19	0.52	0.4	0.22	0.54	0.73	0.63	0.74	0.74	0.58	8.59
Washington	VEYO POWERHOUSE	1.57	1.83	2.36	1.08	0.82	0.44	1.02	1.35	1.1	1.23	1.23	1.06	15.09
Washington	ZION NATIONAL PARK	1.89	1.91	2.34	1.15	0.94	0.42	1.3	1.53	1.04	1.13	1.4	1.09	16.13
Wayne	CAPITOL REEF NATIONAL PARK	0.52	0.38	0.64	0.52	0.64	0.37	0.95	1.19	0.83	0.76	0.6	0.27	7.68
Wayne	HANKSVILLE	0.5	0.25	0.55	0.45	0.52	0.23	0.49	0.55	0.79	0.73	0.39	0.27	5.73
Wayne	HANS FLAT RANGER STATION	0.65	0.5	0.86	0.76	0.66	0.53	1.19	1.09	1.1	1.22	0.81	0.52	9.88
Wayne	LOA	0.52	0.31	0.6	0.41	0.8	0.49	0.88	1.4	0.9	0.76	0.41	0.29	7.77
Weber	BEAR RIVER BAY	1.08	1.04	1.18	1.43	1.52	0.8	0.77	0.77	1.32	1.57	1.11	0.88	13.48
Weber	HUNTSVILLE MONASTERY	2.72	2.23	2.28	1.89	2.44	1.24	0.94	0.94	1.79	1.86	2.29	2.01	22.62
Weber	OGDEN PIONEER POWERHOUSE	2.32	2.13	2.44	2.47	2.9	1.47	0.91	1	1.74	2.27	2.01	1.96	23.63
Weber	OGDEN SUGAR FACTORY	1.66	1.56	1.95	1.88	2.23	1.25	0.62	0.9	1.41	1.93	1.59	1.34	18.32
Weber	PINE VIEW DAM	3.89	3.24	3.45	2.93	3.42	1.71	1.15	1.13	2.03	2.9	3.2	3.41	32.46
Weber	RIVERDALE	1.55	1.73	2.44	2.36	2.61	1.01	0.93	1.01	1.77	2.13	1.8	1.68	21.04
Weber	SNOW BASIN	5.78	3.88	8.43	4.64	3.8	2.25	1.72	1.69	4.21	7.03	2.83	10.67	56.92

APPENDIX C. UTAH NATIVE PLANT AND WATER-WISE DEMONSTRATION GARDENS

UTAH NATIVE PLANT AND WATER-WISE DEMONSTRATION GARDENS

For more information on the Utah Heritage Garden Program contact:
Utah Native Plant Society
P.O. Box 520041
Salt Lake City, UT 84152-0041
(801) 423-2603
www.unps.org
unps@xmission.com

Lehi

Thanksgiving Point Animal Park
Utah Heritage Garden
I-15 frontage road
2 miles north of Lehi
Dave Francis (801) 768-4944

Layton

Heritage Museum of Layton
403 Wasatch Drive
Bill Sanders (801) 546-8579

Logan

USU Greensville Research Farm
1800 North 800 East
Roger Kjelgren (435) 797-2972

Park City

City Park – North End
Deer Valley – Sullivan Road
(801) 645-5016 or (801) 645-5000

Park City Utah Heritage Garden
Intersection of Deer Valley Drive and
Bonanza Drive
Abby Moore (435) 649-8859

Price

Price City Utah Heritage Garden
46 East 300 South
Mike Hubbard (435) 637-4834

Provo

Provo City Utilities
251 West 800 North
(801) 379-6809
Provo Water Resources
1377 South 350 East
(801) 379-6809

Rock Canyon Trailhead Park
Utah Heritage Garden
East end of 2300 North
Celeste Kennard (801) 377-5918

Wasatch Elementary
Utah Heritage Garden
1080 North 900 East
Darrin Johnson (801) 371-2234

Salt Lake City

Brigham Young Historic Park
North Temple and State Street

City Creek Park
North Temple and State Street

Ensign Elementary School
Utah Heritage Garden
12th Avenue and L Street
Ann Kelsey (801) 363-9099

Jackson Elementary School
Utah Heritage Garden
750 West 200 North

Salt Lake City (continued)

Jim Fearick (801) 578-8165
State of Utah
Division of Natural Resources
1636 West North Temple
(801) 538-7299

Red Butte Gardens and Arboretum
University of Utah
300 Wakara Way
(801) 581-4747
Sections of I-215
Department of Transportation
(801) 965-4657 or (801) 965-4104

Salt Lake Community College
College Center – South Entrance
4600 South Redwood Road
(801) 957-4101

University of Utah Mallway
Utah Heritage Garden
Just north of the new Gymnastics gym,
U of U campus
Marcene Younker (801) 581-3078

Sandy

Sandy City Sego Lily Gardens
1500 East Sego Lily Drive
(801) 568-7280

St. George

Federal Inter-Agency Office and
Information Center
345 East Riverside Drive
(801) 673-3545

Tooele County

Benson Grist Mill County Historic Park
Utah Heritage Garden
Grantsville Highway turnoff just north
of Stansbury Park
Pat Jessie (435) 882-7137

APPENDIX D. NATIVE PLANT MATERIAL AND SEED SOURCES

NATIVE PLANT MATERIAL AND SEED SOURCES

Utah

Foulger Seed Company
6999 S. 400 W.
Midvale, UT 84047
(435) 255-1131

Gobel and Son Warehouse
P.O. Box 203
Gunnison, UT 84634
(435) 528-7535

Granite Seed Company
1697 W. 2100 N.
P.O. Box 177
Lehi, UT 84043
(801) 768-4422
www.graniteseed.com

Great Basin Natives
75 West 300 South
P.O. Box 114
Holden, UT 84636
(435) 795-2303
www.grownative.com

Greenhouse Inc., The
295 W. 300 S.
Logan, UT
(435) 752-7923

Intermountain Seed
P.O. Box 62
Ephraim, UT 84627
(435) 283-4383

Lone Peak Conservation Nursery
271 West Bitterbrush Lane
Draper, UT 84020
(801) 571-0900
www.nr.state.ut.us/slf/lonepeak/HOME2
.HTM

Maple Leaf Industries
450 S. 50 E.
Ephraim, UT 84627
(435) 283-4701

Paul Ames
P.O. Box 355
Eureka, UT 84628
(435) 433-6924

Porter Lane Wholesale Nursery
262 W. 400 S.
Centerville, UT 84014
(800) 533-8498
(801) 298-2613

Progressive Plants
9810 S. Wasatch Blvd.
Sandy, UT 84902
(801) 942-7333

Steve Reagen Company
4215 S. 500 W.
Murray, UT 84115
(801) 268-4596

Stevenson Intermountain Seed
P.O. Box 2
Ephraim, UT 84627
(435) 283-6639

Utah Native Plant Society
Attn: Seed Committee Chairperson
P.O. Box 520041
Salt Lake City, UT 84152-0041
(801) 423-2603
www.unps.org

Utah Native Wildflowers
Virginia Markham
3650 W. 2150 S.
Salt Lake City, UT 84120
(801) 277-8423

Utah (continued)

Wildland Nursery
550 N. Hwy 89
Joseph, UT 84739
(435) 527-1234
www.wildlandnursery.com

Willard Bay Gardens
7905 S. Hwy 89
Willard, UT 84340
(435) 723-1834
www.wilardbaygardens.com

Zollinger Fruit and Tree Farm
1000 River Heights Blvd.
River Heights, UT
(435) 752-7810

3 B's Nursery and Greenhouse
440 N. 100 W.
Hyde Park, UT
(435) 563-5414

Arizona

Fjellgarden
P.O. Box 1111
Lakeside, AZ 85929

Mountain States Nursery
P.O. Box 33982
Phoenix, AZ 85067

Southwestern Native Seeds
P.O. Box 50503
Tucson, AX 85703

California

Alpine Plants
P.O Box 245
Tahoe Vista, CA 95732
(916) 546-5578

Bitterroot Restoration
11760 Atwood Road, Suite 5
Auburn, CA 95603
(530) 745-9814
www.revegetation.com

Bitteroot Restoration
3790 Via De La Valle, Suite 117E
Del Mar, California 92014
(858) 481-5865
www.revegetation.com

Clyde Robin Seed Co.
P.O. Box 2366
Castro Valley, CA 94546
(415) 785-0425

Greenlee Nursery
301 East Franklin Ave.
Pomona, CA 91766

J. L. Hudson, Seedsman
P.O. Box 1058
Redwood City, CA 94064

Moon Mountain
P.O. Box 34
Morrow Bay, CA 93422

S & S Seeds
P.O. Box 1275
Carpinteria, CA 93014
(805) 684-0436

Colorado

Anderson Seed Company
1020 9th Street
P.O. Box 2252
Greeley, CO 80632
(800) 456-0169

Applewood Seed Co.
5380 Vivian St.
Arvada, CO 80002
(303) 431-6283

Colorado (continued)

Chelsea Nursery
3347 G. Road
Clifton, CO 81520
(970) 434-8434

Colorado Alpines, Inc.
P.O. Box 2708
Avon, CO 81620
(303) 949-6464

Fort Collins Nursery Wholesale
2224 N. Shields St.
Fort Collins, CO 80524
(800) 794-1278
(970) 484-1289

James Ranch Native Plants
33800 Hwy 550
Durango, CO 81526

Little Valley Wholesale Nursery
13022 E. 136th Ave.
Brighton, CO 80601
(303) 659-6708
(800) 221-3241

Rocky Mountain Rare Plants
P.O. Box 20483
Denver, CO 80220-0483

Valley Grown Nursery
680 24 ½ Road
Grand Junction, CO 81505
(800) 635-7916
(970) 241-0068

Western Native Seed
P.O. Box 1463
Salida, CO 81201

Wild and Crazy Seed Company
P.O. Box 895
Durango, CO 81302

Idaho

High Altitude Gardens
P.O. Box 4619
Ketchum, ID 83340
(208) 726-3221

Idaho Native Nursery
1906 Raintree Drive
Boise, ID 83712
(208) 338-5400

Montana

Bitterroot Native Growers, Inc.
P. O. Box 566
Hamilton, MT 59840

Bitterroot Restoration
445 Quast Lane
Corvallis, MT 59828-9406
(406) 961-4991
www.revegetation.com

Nevada

Northern Nevada Native Plant Society
Mail order seed service
P.O. Box 8965
Reno, NV 89507

New Mexico

Bernardo Beach Native Plant Farm
Star Route 7, Box 145
Vequita, NM 87062

Curtis & Curtis
Star Route, Box 8A
Clovis, NM 88130

High Country Gardens
2902 Rufina Street
Santa Fe, NM 87505-2929
(800) 925-9387
www.highcountrygardens.com

New Mexico (continued)

Plants of the Southwest
Agua Fria, Rt. 6 Box 11A
Santa Fe, NM 87501
(800) 788-7333
www.plantsofthesouthwest.com

Oregon

Forestfarm
990 Tetheroe Rd.
Williams, OR 97544-9599

Russell Graham
4030 Eagle Crest Road, N.W.
Salem, OR 97304

Siskiyou Rare Plant Nursery
2825 Cummings Road
Medford, OR 97501

Texas

Wildseed Farms
425 Wildflower Hills
P.O. Box 3000
Fredericksburg, TX 78624
(800) 848-0078
www.wildseedfarms.com

Texas-Star Gardens
P.O. Box 663
Abillene, TX 79604

Washington

Lamb Nurseries
East 101 Sharp Ave.
Spokane, WA 99202

Mt. Tahoma Nursery
28111 – 112th Ave. East
Graham, WA 98338
(206) 847-9827

The Wild Garden
P.O. Box 487
Bothell, WA 98011

Wyoming

Wind River Seed
3075 Lane 51 ½
Route 1 Box 97
Manderson, WY 82432
(307) 568-3325